

SEQUENCE LISTING

<110> Gennaro, Maria Laura
Gomez, Manuel J.

<120> SECRETED PROTEINS OF MYCOBACTERIUM
TUBERCULOSIS AND THEIR USE AS VACCINES AND DIAGNOSTIC
REAGENTS

<130> 07763-042001

<140> US 10/009,384

<141> 2001-11-02

<150> US 60/132,503

<151> 1999-05-04

<150> US 60/132,479

<151> 1999-05-04

<160> 94

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 103

<212> PRT

<213> Mycobacterium tuberculosis

<400> 1

Met	Asn	Arg	Ile	Val	Gln	Phe	Gly	Val	Ser	Ala	Val	Ala	Ala	Ala	Ala	1	5	10	15
Ile	Gly	Ile	Gly	Ala	Gly	Ser	Gly	Ile	Ala	Ala	Ala	Phe	Asp	Gly	Glu	20	25	30	
Asp	Glu	Val	Thr	Gly	Pro	Asp	Ala	Asp	Arg	Ala	Arg	Ala	Ala	Ala	Val	35	40	45	
Gln	Ala	Val	Pro	Gly	Gly	Thr	Ala	Gly	Glu	Val	Glu	Thr	Glu	Thr	Gly	50	55	60	
Glu	Gly	Ala	Ala	Ala	Tyr	Gly	Val	Leu	Val	Thr	Arg	Pro	Asp	Gly	Thr	65	70	75	80
Arg	Val	Glu	Val	His	Leu	Asp	Arg	Asp	Phe	Arg	Val	Leu	Asp	Thr	Glu	85	90	95	
Pro	Ala	Asp	Gly	Asp	Gly	Gly										100			

<210> 2

<211> 110

<212> PRT

<213> Mycobacterium tuberculosis

<400> 2

Met	Arg	Leu	Ser	Leu	Thr	Ala	Leu	Ser	Ala	Gly	Val	Gly	Ala	Val	Ala	1	5	10	15
Met	Ser	Leu	Thr	Val	Gly	Ala	Gly	Val	Ala	Ser	Ala	Asp	Pro	Val	Asp	20	25	30	
Ala	Val	Ile	Asn	Thr	Thr	Cys	Asn	Tyr	Gly	Gln	Val	Val	Ala	Ala	Leu				

35	40	45
Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn Ala Ser Pro Val		
50	55	60
Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro Pro Pro Gln Arg		
65	70	75
Ala Ala Met Ala Ala Gln Leu Gln Ala Val Pro Gly Ala Ala Gln Tyr		80
85	90	95
Ile Gly Leu Val Glu Ser Val Ala Gly Ser Cys Asn Asn Tyr		
100	105	110

<210> 3

<211> 281

<212> PRT

<213> Mycobacterium tuberculosis

<400> 3

Met Phe Thr Gly Ile Ala Ser His Ala Gly Ala Leu Gly Ala Ala Leu		
1	5	10
Val Val Leu Ile Gly Ala Ala Ile Leu His Asp Gly Pro Ala Ala Ala		15
20	25	30
Asp Pro Asn Gln Asp Asp Arg Phe Leu Ala Leu Leu Glu Lys Lys Glu		
35	40	45
Ile Pro Ala Val Ala Asn Val Pro Arg Val Ile Asp Ala Ala His Lys		
50	55	60
Val Cys Arg Lys Leu Asp Gly Gly Met Pro Val Asn Asp Ile Val Asp		
65	70	75
Gly Leu Arg Asn Asp Ala Tyr Asn Ile Asp Pro Val Met Arg Leu Tyr		80
85	90	95
Pro Val Arg Leu Thr Thr Thr Met Thr Arg Phe Ile Ser Ala Ala Val		
100	105	110
Glu Ile Tyr Cys Pro Asn His His Ser Lys Met Ala Phe Ala Met Ala		
115	120	125
Asn Phe Glu Pro Gly Ser Asn Glu Pro Thr His Arg Val Ala Ala Ser		
130	135	140
Thr Arg Ser Ala Val Asn Ser Gly Ser Asp Leu Arg Ala Ser Val Ser		
145	150	155
Asp Met Thr Ile Met Ser Pro Gly Trp Arg Glu Pro Thr Gly Ala Met		
165	170	175
Leu Ala Ser Val Leu Gly Ala Val Arg Ala Gly Asp Pro Leu Ile Pro		
180	185	190
Asn Pro Pro Pro Ile Pro Val Pro Pro Pro Ala Ala Gln Thr Leu Ile		
195	200	205
Pro Pro Pro Pro Ile Val Ala Pro Pro Pro Pro Arg Pro Ala Pro Pro		
210	215	220
Gln Gln Pro Pro Pro Pro Pro Glu Val Glu Pro Pro Ala Gly Val		
225	230	235
Pro Gln Ser Gly Gly Ala Ala Gly Ser Gly Gly Ala Gly Ser Gly Gly		
245	250	255
Gly Gly Gly Gly Asp Gly Pro Val Glu Pro Ser Pro Ala Arg Pro Met		
260	265	270
Pro Pro Gly Phe Ile Arg Leu Ala Pro		
275	280	

<210> 4

<211> 176

<212> PRT

<213> Mycobacterium tuberculosis

<400> 4

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Met Thr Arg Leu Ile Pro Gly Cys Thr Leu Val Gly Leu Met Leu Thr
 1           5           10           15
Leu Leu Pro Ala Pro Thr Ser Ala Ala Gly Ser Asn Thr Ala Thr Thr
           20           25           30
Leu Phe Pro Val Asp Glu Val Thr Gln Leu Glu Thr His Thr Phe Leu
           35           40           45
Asp Cys His Pro Asn Gly Ser Cys Asp Phe Val Ala Gly Ala Asn Leu
           50           55           60
Arg Thr Pro Asp Gly Pro Thr Gly Phe Pro Pro Gly Leu Trp Ala Arg
65           70           75           80
Gln Thr Thr Glu Ile Arg Ser Thr Asn Arg Leu Ala Tyr Leu Asp Ala
           85           90           95
His Ala Thr Ser Gln Phe Glu Arg Val Met Lys Ala Gly Gly Ser Asp
           100          105          110
Val Ile Thr Thr Val Tyr Phe Gly Glu Gly Pro Pro Asp Lys Tyr Gln
           115          120          125
Thr Thr Gly Val Ile Asp Ser Thr Asn Trp Ser Thr Gly Gln Pro Met
           130          135          140
Thr Asp Val Asn Val Ile Val Cys Thr His Met Gln Val Val Tyr Pro
145           150          155          160
Gly Val Asn Leu Thr Ser Pro Ser Thr Cys Ala Gln Ala Asn Phe Ser
           165          170          175

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<210> 5

<211> 567

<212> PRT

<213> Mycobacterium tuberculosis

<400> 5

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Met Val Leu Arg Ser Arg Lys Ser Thr Leu Gly Val Val Val Cys Leu
 1           5           10           15
Ala Leu Val Leu Gly Gly Pro Leu Asn Gly Cys Ser Ser Ser Ala Ser
           20           25           30
His Arg Gly Pro Leu Asn Ala Met Gly Ser Pro Ala Ile Pro Ser Thr
           35           40           45
Ala Gln Glu Ile Pro Asn Pro Leu Arg Gly Gln Tyr Glu Asp Leu Met
           50           55           60
Glu Pro Leu Phe Pro Gln Gly Asn Pro Ala Gln Gln Arg Tyr Pro Pro
65           70           75           80
Trp Pro Ala Ser Tyr Asp Ala Ser Leu Arg Val Ser Trp Arg Gln Leu
           85           90           95
Gln Pro Thr Asp Pro Arg Thr Leu Pro Pro Asp Ala Pro Asp Arg
           100          105          110
Lys Tyr Asp Phe Ser Val Ile Asp Asn Ala Leu Thr Arg Leu Ala Asp
           115          120          125
Arg Gly Met Arg Leu Thr Leu Arg Val Tyr Ala Tyr Ser Ser Cys Cys
           130          135          140
Lys Ala Ser Tyr Pro Asp Gly Thr Asn Ile Ala Ile Pro Asp Trp Glu
145           150          155          160
Arg Ala Ile Ala Ser Thr Asn Thr Ser Tyr Pro Gly Pro Ala Thr Asp
           165          170          175
Pro Ser Thr Gly Val Val Gln Val Val Pro Asn Phe Asn Asp Ser Thr
           180          185          190
Tyr Leu Asn Asp Phe Ala Gln Leu Leu Ala Ala Leu Gly Arg Arg Tyr
           195          200          205

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Asp Gly Asp Glu Arg Leu Ser Val Phe Glu Phe Ser Gly Tyr Gly Asp
 . 210 215 220
 Phe Ser Glu Asn His Val Ala Tyr Leu Arg Asp Thr Leu Gly Ala Pro
 225 230 235 240
 Gly Pro Gly Pro Asp Glu Ser Val Ala Thr Leu Gly Tyr Tyr Ser Gln
 245 250 255
 Phe Arg Asp Gln Asn Ile Thr Thr Ala Ser Ile Lys Gln Leu Ile Ala
 260 265 270
 Ala Asn Val Ser Ala Phe Pro His Thr Gln Leu Val Thr Ser Pro Ala
 275 280 285
 Asn Pro Glu Ile Val Arg Glu Leu Phe Ala Asp Glu Val Thr Asn Lys
 290 295 300
 Leu Ala Ala Pro Val Gly Val Arg Ser Asp Cys Leu Gly Val Asp Ala
 305 310 315 320
 Pro Leu Pro Ala Trp Ala Glu Ser Ser Thr Ser His Tyr Val Gln Thr
 325 330 335
 Lys Asp Pro Val Val Ala Ala Leu Arg Gln Arg Leu Ala Thr Ala Pro
 340 345 350
 Val Ile Thr Glu Trp Cys Glu Leu Pro Thr Gly Ser Ser Pro Arg Ala
 355 360 365
 Tyr Tyr Glu Lys Gly Leu Arg Asp Val Ile Arg Tyr His Val Ser Met
 370 375 380
 Thr Ser Ser Val Asn Phe Pro Asp Gln Thr Ala Thr Ser Pro Met Asp
 385 390 395 400
 Pro Ala Leu Tyr Leu Val Trp Ala Gln Ala Asn Ala Ala Gly Tyr
 405 410 415
 Arg Tyr Ser Val Glu Ala Gln Pro Gly Ser Gln Ala Leu Ala Gly Lys
 420 425 430
 Val Ala Thr Ile Ser Val Thr Trp Thr Asn Tyr Gly Ala Ala Ala Ala
 435 440 445
 Thr Glu Lys Trp Val Pro Gly Tyr Arg Leu Val Asp Ser Thr Gly Gln
 450 455 460
 Val Val Arg Thr Leu Pro Ala Ala Val Asp Leu Lys Thr Leu Val Ser
 465 470 475 480
 Asp Gln Arg Gly Asp Arg Ser Ser Asp Gln Pro Thr Pro Ala Ser Val
 485 490 495
 Ala Glu Thr Val Arg Val Asp Leu Ser Gly Leu Pro Ala Gly His Tyr
 500 505 510
 Thr Leu Arg Ala Ala Ile Asp Trp Gln Gln His Lys Pro Asn Gly Ser
 515 520 525
 His Val Val Asn Tyr Pro Pro Met Leu Leu Ser Arg Asp Gly Arg Asp
 530 535 540
 Asp Ser Gly Phe Tyr Pro Val Ala Thr Leu Asp Ile Pro Arg Asp Ala
 545 550 555 560
 Gln Thr Ala Val Asn Ala Ser
 565

<210> 6

<211> 218

<212> PRT

<213> Mycobacterium tuberculosis

<400> 6

Met Ser Arg Leu Leu Ala Leu Leu Cys Ala Ala Val Cys Thr Gly Cys
 1 5 10 15
 Val Ala Val Val Leu Ala Pro Val Ser Leu Ala Val Val Asn Pro Trp
 20 25 30

Phe Ala Asn Ser Val Gly Asn Ala Thr Gln Val Val Ser Val Val Gly
 35 40 45
 Thr Gly Gly Ser Thr Ala Lys Met Asp Val Tyr Gln Arg Thr Ala Ala
 50 55 60
 Gly Trp Gln Pro Leu Lys Thr Gly Ile Thr Thr His Ile Gly Ser Ala
 65 70 75 80
 Gly Met Ala Pro Glu Ala Lys Ser Gly Tyr Pro Ala Thr Pro Met Gly
 85 90 95
 Val Tyr Ser Leu Asp Ser Ala Phe Gly Thr Ala Pro Asn Pro Gly Gly
 100 105 110
 Gly Leu Pro Tyr Thr Gln Val Gly Pro Asn His Trp Trp Ser Gly Asp
 115 120 125
 Asp Asn Ser Pro Thr Phe Asn Ser Met Gln Val Cys Gln Lys Ser Gln
 130 135 140
 Cys Pro Phe Ser Thr Ala Asp Ser Glu Asn Leu Gln Ile Pro Gln Tyr
 145 150 155 160
 Lys His Ser Val Val Met Gly Val Asn Lys Ala Lys Val Pro Gly Lys
 165 170 175
 Gly Ser Ala Phe Phe Phe His Thr Thr Asp Gly Gly Pro Thr Ala Gly
 180 185 190
 Cys Val Ala Ile Asp Asp Ala Thr Leu Val Gln Ile Ile Arg Trp Leu
 195 200 205
 Arg Pro Gly Ala Val Ile Ala Ile Ala Lys
 210 215

<210> 7

<211> 135

<212> PRT

<213> Mycobacterium tuberculosis

<400> 7

Met Ile Arg Glu Leu Val Thr Thr Ala Ala Ile Thr Gly Ala Ala Ile
 1 5 10 15
 Gly Gly Ala Pro Val Ala Gly Ala Asp Pro Gln Arg Tyr Asp Gly Asp
 20 25 30
 Val Pro Gly Met Asn Tyr Asp Ala Ser Leu Gly Ala Pro Cys Ser Ser
 35 40 45
 Trp Glu Arg Phe Ile Phe Gly Arg Gly Pro Ser Gly Gln Ala Glu Ala
 50 55 60
 Cys His Phe Pro Pro Pro Asn Gln Phe Pro Pro Ala Glu Thr Gly Tyr
 65 70 75 80
 Trp Val Ile Ser Tyr Pro Leu Tyr Gly Val Gln Gln Val Gly Ala Pro
 85 90 95
 Cys Pro Lys Pro Gln Ala Ala Ala Gln Ser Pro Asp Gly Leu Pro Met
 100 105 110
 Leu Cys Leu Gly Ala Arg Gly Trp Gln Pro Gly Trp Phe Thr Gly Ala
 115 120 125
 Gly Phe Phe Pro Pro Glu Pro
 130 135

<210> 8

<211> 157

<212> PRT

<213> Mycobacterium tuberculosis

<400> 8

Met Gly Glu Leu Arg Leu Val Gly Gly Val Leu Arg Val Leu Val Val

1	5	10	15
Val Gly Ala	Val Phe Asp Val Ala	Val Leu Asn Ala	Gly Ala Ala Ser
	20	25	30
Ala Asp Gly	Pro Val Gln Leu Lys Ser Arg	Leu Gly Asp	Val Cys Leu
	35	40	45
Asp Ala Pro	Ser Gly Ser Trp Phe Ser	Pro Leu Val	Ile Asn Pro Cys
	50	55	60
Asn Gly Thr	Asp Phe Gln Arg Trp Asn Leu Thr	Asp Asp Arg	Gln Val
	65	70	75
Glu Ser Val	Ala Phe Pro Gly Glu Cys Val	Asn Ile Gly	Asn Ala Leu
	85	90	95
Trp Ala Arg	Leu Gln Pro Cys Val Asn Trp	Ile Ser Gln	His Trp Thr
	100	105	110
Val Gln Pro	Asp Gly Leu Val Lys Ser Asp	Leu Asp Ala	Cys Leu Thr
	115	120	125
Val Leu Gly	Gly Pro Asp Pro Gly Thr Trp	Val Ser Thr	Arg Trp Cys
	130	135	140
Asp Pro Asn	Ala Pro Asp Gln Gln Trp Asp	Ser Val Pro	
	145	150	155

<210> 9

<211> 240

<212> PRT

<213> Mycobacterium tuberculosis

<400> 9

Met Pro Ala	Met Thr Ala Arg Ser Val	Val Leu Ser Val	Leu Leu Gly
1	5	10	15
Ala His Pro	Ala Trp Ala Thr Ala Ser	Glu Leu Ile Gln	Leu Thr Ala
	20	25	30
Asp Phe Gly	Ile Lys Glu Thr Thr Leu Arg	Val Ala Leu Thr	Arg Met
	35	40	45
Val Gly Ala	Gly Asp Leu Val Arg Ser Ala	Asp Gly Tyr Arg	Leu Ser
	50	55	60
Asp Arg Leu	Leu Ala Arg Gln Arg Arg Gln	Asp Glu Ala Met	Arg Pro
	65	70	75
Arg Thr Arg	Ala Trp His Gly Asn Trp His	Met Leu Ile Val	Thr Ser
	85	90	95
Ile Gly Thr	Asp Ala Arg Thr Arg Ala Ala	Leu Arg Thr Cys	Met His
	100	105	110
His Lys Arg	Phe Gly Glu Leu Arg Glu Gly	Val Trp Met Arg	Pro Asp
	115	120	125
Asn Leu Asp	Leu Asp Leu Glu Ser Asp Val	Ala Ala Arg Val	Arg Met
	130	135	140
Leu Thr Ala	Arg Asp Glu Ala Pro Ala Asp	Leu Ala Gly Gln	Leu Trp
	145	150	155
Asp Leu Ser	Gly Trp Thr Glu Ala Gly His	Arg Leu Leu Gly	Asp Met
	165	170	175
Ala Ala Ala	Thr Asp Met Pro Gly Arg Phe	Val Val Ala Ala	Ala Met
	180	185	190
Val Arg His	Leu Leu Thr Asp Pro Met Leu	Pro Ala Glu Leu	Leu Pro
	195	200	205
Ala Asp Trp	Pro Gly Ala Gly Leu Arg Ala	Ala Tyr His Asp	Phe Ala
	210	215	220
Thr Ala Met	Ala Lys Arg Arg Asp Ala Thr	Gln Leu Leu Glu	Val Thr
	225	230	235

<210> 10
 <211> 154
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 10
 Val Pro Ala Gly Val Gly Asn Ala Ser Gly Ser Val Leu Asp Met Thr
 1 5 10 15
 Ser Val Arg Thr Val Pro Ser Ala Val Ala Leu Val Thr Phe Ala Gly
 20 25 30
 Ala Ala Leu Ser Gly Val Ile Pro Ala Ile Ala Arg Ala Asp Pro Val
 35 40 45
 Gly His Gln Val Thr Tyr Thr Val Thr Thr Thr Ser Asp Leu Met Ala
 50 55 60
 Asn Ile Arg Tyr Met Ser Ala Asp Pro Pro Ser Met Ala Ala Phe Asn
 65 70 75 80
 Ala Asp Ser Ser Lys Tyr Met Ile Thr Leu His Thr Pro Ile Ala Gly
 85 90 95
 Gly Gln Pro Leu Val Tyr Thr Ala Thr Leu Ala Asn Pro Ser Gln Trp
 100 105 110
 Ala Ile Val Thr Ala Ser Gly Gly Leu Arg Val Asn Pro Glu Phe His
 115 120 125
 Cys Glu Ile Val Val Asp Gly Gln Val Val Val Ser Gln Asp Gly Gly
 130 135 140
 Ser Gly Val Gln Cys Ser Thr Arg Pro Trp
 145 150

<210> 11
 <211> 232
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 11
 Met Thr Thr Ser Lys Ile Ala Thr Ala Phe Lys Thr Ala Thr Phe Ala
 1 5 10 15
 Leu Ala Ala Gly Ala Val Ala Leu Gly Leu Ala Ser Pro Ala Asp Ala
 20 25 30
 Ala Ala Gly Thr Met Tyr Gly Asp Pro Ala Ala Ala Lys Tyr Trp
 35 40 45
 Arg Gln Gln Thr Tyr Asp Asp Cys Val Leu Met Ser Ala Ala Asp Val
 50 55 60
 Ile Gly Gln Val Thr Gly Arg Glu Pro Ser Glu Arg Ala Ile Ile Lys
 65 70 75 80
 Val Ala Gln Ser Thr Pro Ser Val Val His Pro Gly Ser Ile Tyr Thr
 85 90 95
 Lys Pro Ala Asp Ala Glu His Pro Asn Ser Gly Met Gly Thr Ser Val
 100 105 110
 Ala Asp Ile Pro Thr Leu Leu Ala His Tyr Gly Val Asp Ala Val Ile
 115 120 125
 Thr Asp Glu Asp His Ala Thr Ala Thr Gly Val Ala Thr Gly Met Ala
 130 135 140
 Ala Leu Glu Gln Tyr Leu Gly Ser Gly His Ala Val Ile Val Ser Ile
 145 150 155 160
 Asn Ala Glu Met Ile Trp Gly Gln Pro Val Glu Glu Thr Asp Ser Ala
 165 170 175
 Gly Asn Pro Arg Ser Asp His Ala Val Val Thr Gly Val Asp Thr
 180 185 190

Glu Asn Gly Ile Val His Leu Asn Asp Ser Gly Thr Pro Thr Gly Arg
 195 200 205
 Asp Glu Gln Ile Pro Met Glu Thr Phe Val Glu Ala Trp Ala Thr Ser
 210 215 220
 His Asp Phe Met Ala Val Thr Thr
 225 230

<210> 12

<211> 213

<212> PRT

<213> Mycobacterium tuberculosis

<400> 12

Met Gly Val Ile Ala Arg Val Val Gly Val Ala Ala Cys Gly Leu Ser
 1 5 10 15
 Leu Ala Val Leu Ala Ala Ala Pro Thr Ala Gly Ala Glu Pro Thr Gly
 20 25 30
 Ala Leu Pro Pro Met Thr Ser Ser Gly Ser Gly Pro Val Ile Gly Asp
 35 40 45
 Gly Asp Ala Ala Leu Arg Gln Arg Ile Ser Gln Gln Leu Phe Ser Phe
 50 55 60
 Gly Asp Pro Thr Val Gln Glu Val Asp Gly Ser Asp Ala Ala Gln Phe
 65 70 75 80
 Ile Thr Ala Ala Ala Val Ala Asp Arg Asp Val Ala Ser Val Phe
 85 90 95
 Leu Pro Leu Gln Arg Val Leu Gly Cys Gln Gln Asn Thr Ala Gly Ser
 100 105 110
 Gly Ala Gly Phe Gly Ala Arg Ala Tyr Arg Arg Thr Asp Gly Gln Trp
 115 120 125
 Gly Gly Ala Met Leu Val Val Ala Lys Ser Thr Val Ser Asp Val Asp
 130 135 140
 Ala Leu Lys Ala Cys Val Lys Ser Gly Trp Arg Lys Ala Thr Ala Gly
 145 150 155 160
 Thr Pro Thr Ser Met Cys Asn Asn Gly Trp Thr Tyr Pro Pro Phe Ala
 165 170 175
 Asp Thr Arg Arg Gly Glu Glu Gly Tyr Phe Val Leu Leu Ala Gly Thr
 180 185 190
 Ala Ser Asp Phe Cys Ser Ala Pro Asn Ala Asn Tyr Arg Thr Thr Ala
 195 200 205
 Ser Ser Trp Pro Gly
 210

<210> 13

<211> 156

<212> PRT

<213> Mycobacterium tuberculosis

<400> 13

Met Arg Leu Lys Pro Ala Pro Ser Pro Ala Ala Ala Phe Ala Val Ala
 1 5 10 15
 Gly Leu Ile Leu Ala Gly Trp Ala Gly Ser Val Gly Leu Ala Gly Ala
 20 25 30
 Asp Pro Glu Pro Ala Pro Thr Pro Lys Thr Ala Ile Asp Ser Asp Gly
 35 40 45
 Thr Tyr Ala Val Gly Ile Asp Ile Ala Pro Gly Thr Tyr Ser Ser Ala
 50 55 60
 Gly Pro Val Gly Asp Gly Thr Cys Tyr Trp Lys Arg Met Gly Asn Pro

65		70		75		80									
Asp	Gly	Ala	Leu	Ile	Asp	Asn	Ala	Leu	Ser	Lys	Lys	Pro	Gln	Val	Val
		85		90		95									
Thr	Ile	Glu	Pro	Thr	Asp	Lys	Ala	Phe	Lys	Thr	His	Gly	Cys	Gln	Pro
		100		105		110									
Trp	Gln	Asn	Thr	Gly	Ser	Glu	Gly	Ala	Ala	Pro	Ala	Gly	Val	Pro	Gly
		115		120		125									
Pro	Glu	Ala	Gly	Ala	Gln	Leu	Gln	Asn	Gln	Leu	Gly	Ile	Leu	Asn	Gly
		130		135		140									
Leu	Leu	Gly	Pro	Thr	Gly	Gly	Arg	Val	Pro	Gln	Pro				
145				150		155									

<210> 14

<211> 143

<212> PRT

<213> Mycobacterium tuberculosis

<400> 14

Met	Ile	Thr	Asn	Leu	Arg	Arg	Arg	Thr	Ala	Met	Ala	Ala	Ala	Gly	Leu
1				5				10						15	
Gly	Ala	Ala	Leu	Gly	Leu	Gly	Ile	Leu	Leu	Val	Pro	Thr	Val	Asp	Ala
			20				25						30		
His	Leu	Ala	Asn	Gly	Ser	Met	Ser	Glu	Val	Met	Met	Ser	Glu	Ile	Ala
		35				40						45			
Gly	Leu	Pro	Ile	Pro	Pro	Ile	Ile	His	Tyr	Gly	Ala	Ile	Ala	Tyr	Ala
	50					55					60				
Pro	Ser	Gly	Ala	Ser	Gly	Lys	Ala	Trp	His	Gln	Arg	Thr	Pro	Ala	Arg
65					70				75					80	
Ala	Glu	Gln	Val	Ala	Leu	Glu	Lys	Cys	Gly	Asp	Lys	Thr	Cys	Lys	Val
			85					90						95	
Val	Ser	Arg	Phe	Thr	Arg	Cys	Gly	Ala	Val	Ala	Tyr	Asn	Gly	Ser	Lys
			100				105						110		
Tyr	Gln	Gly	Gly	Thr	Gly	Leu	Thr	Arg	Arg	Ala	Ala	Glu	Asp	Asp	Ala
		115				120						125			
Val	Asn	Arg	Leu	Glu	Gly	Gly	Arg	Ile	Val	Asn	Trp	Ala	Cys	Asn	
	130					135					140				

<210> 15

<211> 133

<212> PRT

<213> Mycobacterium tuberculosis

<400> 15

Val	Thr	Val	Leu	Leu	Asp	Ala	Asn	Val	Leu	Ile	Ala	Leu	Val	Val	Ala
1				5				10						15	
Glu	His	Val	His	His	Asp	Ala	Ala	Ala	Asp	Trp	Leu	Met	Ala	Ser	Asp
			20					25					30		
Thr	Gly	Phe	Ala	Thr	Cys	Pro	Met	Thr	Gln	Gly	Ser	Leu	Val	Arg	Phe
		35					40					45			
Leu	Val	Arg	Ser	Gly	Gln	Ser	Ala	Ala	Ala	Ala	Arg	Asp	Val	Val	Ser
	50					55					60				
Ala	Val	Gln	Cys	Thr	Ser	Arg	His	Glu	Phe	Trp	Pro	Asp	Ala	Leu	Ser
65					70				75					80	
Phe	Ala	Gly	Val	Glu	Val	Ala	Gly	Val	Val	Gly	His	Arg	Gln	Val	Thr
			85					90						95	
Asp	Ala	Tyr	Leu	Ala	Gln	Leu	Ala	Arg	Ser	His	Asp	Gly	Gln	Leu	Ala
			100					105						110	

Thr Leu Asp Ser Gly Leu Ala His Leu His Gly Asp Val Ala Val Leu
 115 120 125
 Ile Pro Thr Thr Thr
 130

<210> 16
 <211> 125
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 16
 Val Gln Arg Gln Ser Leu Met Pro Gln Gln Thr Leu Ala Ala Gly Val
 1 5 10 15
 Phe Val Gly Ala Leu Leu Cys Gly Val Val Thr Ala Ala Val Pro Pro
 20 25 30
 His Ala Arg Ala Asp Val Val Ala Tyr Leu Val Asn Val Thr Val Arg
 35 40 45
 Pro Gly Tyr Asn Phe Ala Asn Ala Asp Ala Ala Leu Ser Tyr Gly His
 50 55 60
 Gly Leu Cys Glu Lys Val Ser Arg Gly Arg Pro Tyr Ala Gln Ile Ile
 65 70 75 80
 Ala Asp Val Lys Ala Asp Phe Asp Thr Arg Asp Gln Tyr Gln Ala Ser
 85 90 95
 Tyr Leu Leu Ser Gln Ala Val Asn Glu Leu Cys Pro Ala Leu Ile Trp
 100 105 110
 Gln Leu Arg Asn Ser Ala Val Asp Asn Arg Arg Ser Gly
 115 120 125

<210> 17
 <211> 218
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 17
 Val Arg Ser Tyr Leu Leu Arg Ile Glu Leu Ala Asp Arg Pro Gly Ser
 1 5 10 15
 Leu Gly Ser Leu Ala Val Ala Leu Gly Ser Val Gly Ala Asp Ile Leu
 20 25 30
 Ser Leu Asp Val Val Glu Arg Gly Asn Gly Tyr Ala Ile Asp Asp Leu
 35 40 45
 Val Val Glu Leu Pro Pro Gly Ala Met Pro Asp Thr Leu Ile Thr Ala
 50 55 60
 Ala Glu Ala Leu Asn Gly Val Arg Val Asp Ser Val Arg Pro His Thr
 65 70 75 80
 Gly Leu Leu Glu Ala His Arg Glu Leu Glu Leu Asp His Val Ala
 85 90 95
 Ala Ala Glu Gly Ala Thr Ala Arg Leu Gln Val Leu Val Asn Glu Ala
 100 105 110
 Pro Arg Val Leu Arg Val Ser Trp Cys Thr Val Leu Arg Ser Ser Gly
 115 120 125
 Gly Glu Leu His Arg Leu Ala Gly Ser Pro Gly Ala Pro Glu Thr Arg
 130 135 140
 Ala Asn Ser Ala Pro Trp Leu Pro Ile Glu Arg Ala Ala Ala Leu Asp
 145 150 155 160
 Gly Gly Ala Asp Trp Val Pro Gln Ala Trp Arg Asp Met Asp Thr Thr
 165 170 175
 Met Val Ala Ala Pro Leu Gly Asp Thr His Thr Ala Val Val Leu Gly

	180		185		190
Arg	Pro	Gly	Pro	Glu	Phe
	195		200		205
Leu	Ala	Gly	Ile	Val	Ala
	210		215		

<210> 18
 <211> 219
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 18																	
Met	Pro	Asp	Gly	Glu	Gln	Ser	Gln	Pro	Pro	Ala	Gln	Glu	Asp	Ala	Glu		
1				5					10					15			
Asp	Asp	Ser	Arg	Pro	Asp	Ala	Ala	Glu	Ala	Ala	Ala	Ala	Glu	Pro	Lys		
			20					25					30				
Ser	Ser	Ala	Gly	Pro	Met	Phe	Ser	Thr	Tyr	Gly	Ile	Ala	Ser	Thr	Leu		
		35				40						45					
Leu	Gly	Val	Leu	Ser	Val	Ala	Ala	Val	Val	Leu	Gly	Ala	Met	Ile	Trp		
	50					55					60						
Ser	Ala	His	Arg	Asp	Asp	Ser	Gly	Glu	Arg	Thr	Tyr	Leu	Thr	Arg	Val		
65					70				75					80			
Met	Leu	Thr	Ala	Ala	Glu	Trp	Thr	Ala	Val	Leu	Ile	Asn	Met	Asn	Ala		
				85				90						95			
Asp	Asn	Ile	Asp	Ala	Ser	Leu	Gln	Arg	Leu	His	Asp	Gly	Thr	Val	Gly		
			100					105						110			
Gln	Leu	Asn	Thr	Asp	Phe	Asp	Ala	Val	Val	Gln	Pro	Tyr	Arg	Gln	Val		
		115					120						125				
Val	Glu	Lys	Leu	Arg	Thr	His	Ser	Ser	Gly	Arg	Ile	Glu	Ala	Val	Ala		
		130				135					140						
Ile	Asp	Thr	Val	His	Arg	Glu	Leu	Asp	Thr	Gln	Ser	Gly	Ala	Ala	Arg		
145					150					155					160		
Pro	Val	Val	Thr	Thr	Lys	Leu	Pro	Pro	Phe	Ala	Thr	Arg	Thr	Asp	Ser		
				165					170					175			
Val	Leu	Leu	Val	Ala	Thr	Ser	Val	Ser	Glu	Asn	Ala	Gly	Ala	Lys	Pro		
			180					185					190				
Gln	Thr	Val	His	Trp	Asn	Leu	Arg	Leu	Asp	Val	Ser	Asp	Val	Asp	Gly		
		195				200						205					
Lys	Leu	Met	Ile	Ser	Arg	Leu	Glu	Ser	Ile	Arg							
		210				215											

<210> 19
 <211> 168
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 19																	
Met	Lys	Met	Val	Lys	Ser	Ile	Ala	Ala	Gly	Leu	Thr	Ala	Ala	Ala	Ala		
1				5					10					15			
Ile	Gly	Ala	Ala	Ala	Ala	Gly	Val	Thr	Ser	Ile	Met	Ala	Gly	Gly	Pro		
			20					25					30				
Val	Val	Tyr	Gln	Met	Gln	Pro	Val	Val	Phe	Gly	Ala	Pro	Leu	Pro	Leu		
		35				40						45					
Asp	Pro	Ala	Ser	Ala	Pro	Asp	Val	Pro	Thr	Ala	Ala	Gln	Leu	Thr	Ser		
	50					55					60						
Leu	Leu	Asn	Ser	Leu	Ala	Asp	Pro	Asn	Val	Ser	Phe	Ala	Asn	Lys	Gly		
65					70					75					80		

Ser Leu Val Glu Gly Gly Ile Gly Gly Thr Glu Ala Arg Ile Ala Asp
 85 90 95
 His Lys Leu Lys Lys Ala Ala Glu His Gly Asp Leu Pro Leu Ser Phe
 100 105 110
 Ser Val Thr Asn Ile Gln Pro Ala Ala Ala Gly Ser Ala Thr Ala Asp
 115 120 125
 Val Ser Val Ser Gly Pro Lys Leu Ser Ser Pro Val Thr Gln Asn Val
 130 135 140
 Thr Phe Val Asn Gln Gly Gly Trp Met Leu Ser Arg Ala Ser Ala Met
 145 150 155 160
 Glu Leu Leu Gln Ala Ala Gly Asn
 165

<210> 20

<211> 129

<212> PRT

<213> Mycobacterium tuberculosis

<400> 20

Met Asn Leu Arg Arg His Gln Thr Leu Thr Leu Arg Leu Leu Ala Ala
 1 5 10 15
 Ser Ala Gly Ile Leu Ser Ala Ala Ala Phe Ala Ala Pro Ala Gln Ala
 20 25 30
 Asn Pro Val Asp Asp Ala Phe Ile Ala Ala Leu Asn Asn Ala Gly Val
 35 40 45
 Asn Tyr Gly Asp Pro Val Asp Ala Lys Ala Leu Gly Gln Ser Val Cys
 50 55 60
 Pro Ile Leu Ala Glu Pro Gly Gly Ser Phe Asn Thr Ala Val Ala Ser
 65 70 75 80
 Val Val Ala Arg Ala Gln Gly Met Ser Gln Asp Met Ala Gln Thr Phe
 85 90 95
 Thr Ser Ile Ala Ile Ser Met Tyr Cys Pro Ser Val Met Ala Asp Val
 100 105 110
 Ala Ser Gly Asn Leu Pro Ala Leu Pro Asp Met Pro Gly Leu Pro Gly
 115 120 125
 Ser

<210> 21

<211> 108

<212> PRT

<213> Mycobacterium tuberculosis

<400> 21

Met Arg Val Val Ser Thr Leu Leu Ser Ile Pro Leu Met Ile Gly Leu
 1 5 10 15
 Ala Val Pro Ala His Ala Gly Pro Ser Gly Asp Asp Ala Val Phe Leu
 20 25 30
 Ala Ser Leu Glu Arg Ala Gly Ile Thr Tyr Ser His Pro Asp Gln Ala
 35 40 45
 Ile Ala Ser Gly Lys Ala Val Cys Ala Leu Val Glu Ser Gly Glu Ser
 50 55 60
 Gly Leu Gln Val Val Asn Glu Leu Arg Thr Arg Asn Pro Gly Phe Ser
 65 70 75 80
 Met Asp Gly Cys Cys Lys Phe Ala Ala Ile Ser Ala His Val Tyr Cys
 85 90 95
 Pro His Gln Ile Thr Lys Thr Ser Val Ser Ala Lys

100

105

<210> 22

<211> 123

<212> PRT

<213> Mycobacterium tuberculosis

<400> 22

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Met Ala Arg Thr Leu Ala Leu Arg Ala Ser Ala Gly Leu Val Ala Gly
 1           5           10           15
Met Ala Met Ala Ala Ile Thr Leu Ala Pro Gly Ala Arg Ala Glu Thr
          20           25           30
Gly Glu Gln Phe Pro Gly Asp Gly Val Phe Leu Val Gly Thr Asp Ile
          35           40           45
Ala Pro Gly Thr Tyr Arg Thr Glu Gly Pro Ser Asn Pro Leu Ile Leu
          50           55           60
Val Phe Gly Arg Val Ser Glu Leu Ser Thr Cys Ser Trp Ser Thr His
65           70           75           80
Ser Ala Pro Glu Val Ser Asn Glu Asn Ile Val Asp Thr Asn Thr Ser
          85           90           95
Met Gly Pro Met Ser Val Val Ile Pro Pro Thr Val Ala Ala Phe Gln
          100          105          110
Thr His Asn Cys Lys Leu Trp Met Arg Ile Ser
          115          120

```

<210> 23

<211> 113

<212> PRT

<213> Mycobacterium tuberculosis

<400> 23

```

Met Leu Ser Pro Leu Ser Pro Arg Ile Ile Ala Ala Phe Thr Thr Ala
 1           5           10           15
Val Gly Ala Ala Ala Ile Gly Leu Ala Val Ala Thr Ala Gly Thr Ala
          20           25           30
Gly Ala Asn Thr Lys Asp Glu Ala Phe Ile Ala Gln Met Glu Ser Ile
          35           40           45
Gly Val Thr Phe Ser Ser Pro Gln Val Ala Thr Gln Gln Ala Gln Leu
          50           55           60
Val Cys Lys Lys Leu Ala Ser Gly Glu Thr Gly Thr Glu Ile Ala Glu
65           70           75           80
Glu Val Leu Ser Gln Thr Asn Leu Thr Thr Lys Gln Ala Ala Tyr Phe
          85           90           95
Val Val Asp Ala Thr Lys Ala Tyr Cys Pro Gln Tyr Ala Ser Gln Leu
          100          105          110
Thr

```

<210> 24

<211> 124

<212> PRT

<213> Mycobacterium tuberculosis

<400> 24

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Met Thr Thr Met Ile Thr Leu Arg Arg Arg Phe Ala Val Ala Val Ala
 1           5           10           15
Gly Val Ala Thr Ala Ala Ala Thr Thr Val Thr Leu Ala Pro Ala Pro

```

	20		25		30										
Ala	Asn	Ala	Ala	Asp	Val	Tyr	Gly	Ala	Ile	Ala	Tyr	Ser	Gly	Asn	Gly
	35		40		45										
Ser	Trp	Gly	Arg	Ser	Trp	Asp	Tyr	Pro	Thr	Arg	Ala	Ala	Ala	Glu	Ala
	50		55		60										
Thr	Ala	Val	Lys	Ser	Cys	Gly	Tyr	Ser	Asp	Cys	Lys	Val	Leu	Thr	Ser
65			70		75									80	
Phe	Thr	Ala	Cys	Gly	Ala	Val	Ala	Ala	Asn	Asp	Arg	Ala	Tyr	Gln	Gly
			85		90									95	
Gly	Val	Gly	Pro	Thr	Leu	Ala	Ala	Ala	Met	Lys	Asp	Ala	Leu	Thr	Lys
			100		105									110	
Leu	Gly	Gly	Gly	Tyr	Ile	Asp	Thr	Trp	Ala	Cys	Asn				
	115				120										

<210> 25

<211> 154

<212> PRT

<213> Mycobacterium tuberculosis

<400> 25

Met	Thr	Pro	Gly	Leu	Leu	Thr	Thr	Ala	Gly	Ala	Gly	Arg	Pro	Arg	Asp
1			5					10				15			
Arg	Cys	Ala	Arg	Ile	Val	Cys	Thr	Val	Phe	Ile	Glu	Thr	Ala	Val	Val
		20					25					30			
Ala	Thr	Met	Phe	Val	Ala	Leu	Leu	Gly	Leu	Ser	Thr	Ile	Ser	Ser	Lys
	35					40					45				
Ala	Asp	Asp	Ile	Asp	Trp	Asp	Ala	Ile	Ala	Gln	Cys	Glu	Ser	Gly	Gly
50					55					60					
Asn	Trp	Ala	Ala	Asn	Thr	Gly	Asn	Gly	Leu	Tyr	Gly	Gly	Leu	Gln	Ile
65				70				75						80	
Ser	Gln	Ala	Thr	Trp	Asp	Ser	Asn	Gly	Gly	Val	Gly	Ser	Pro	Ala	Ala
			85					90						95	
Ala	Ser	Pro	Gln	Gln	Gln	Ile	Glu	Val	Ala	Asp	Asn	Ile	Met	Lys	Thr
		100					105						110		
Gln	Gly	Pro	Gly	Ala	Trp	Pro	Lys	Cys	Ser	Ser	Cys	Ser	Gln	Gly	Asp
	115					120						125			
Ala	Pro	Leu	Gly	Ser	Leu	Thr	His	Ile	Leu	Thr	Phe	Leu	Ala	Ala	Glu
	130					135					140				
Thr	Gly	Gly	Cys	Ser	Gly	Ser	Arg	Asp	Asp						
145					150										

<210> 26

<211> 381

<212> PRT

<213> Mycobacterium tuberculosis

<400> 26

Val	Gln	Gly	Ala	Val	Ala	Gly	Leu	Val	Phe	Leu	Ala	Val	Leu	Val	Ile
1			5					10					15		
Phe	Ala	Ile	Ile	Val	Val	Ala	Lys	Ser	Val	Ala	Leu	Ile	Pro	Gln	Ala
		20					25					30			
Glu	Ala	Ala	Val	Ile	Glu	Arg	Leu	Gly	Arg	Tyr	Ser	Arg	Thr	Val	Ser
	35					40					45				
Gly	Gln	Leu	Thr	Leu	Leu	Val	Pro	Phe	Ile	Asp	Arg	Val	Arg	Ala	Arg
50					55					60					
Val	Asp	Leu	Arg	Glu	Arg	Val	Val	Ser	Phe	Pro	Pro	Gln	Pro	Val	Ile
65					70					75				80	

```

Thr Glu Asp Asn Leu Thr Leu Asn Ile Asp Thr Val Val Tyr Phe Gln
      85                      90                      95
Val Thr Val Pro Gln Ala Ala Val Tyr Glu Ile Ser Asn Tyr Ile Val
      100                      105                      110
Gly Val Glu Gln Leu Thr Thr Thr Thr Leu Arg Asn Val Val Gly Gly
      115                      120                      125
Met Thr Leu Glu Gln Thr Leu Thr Ser Arg Asp Gln Ile Asn Ala Gln
      130                      135                      140
Leu Arg Gly Val Leu Asp Glu Ala Thr Gly Arg Trp Gly Leu Arg Val
      145                      150                      155                      160
Ala Arg Val Glu Leu Arg Ser Ile Asp Pro Pro Pro Ser Ile Gln Ala
      165                      170                      175
Ser Met Glu Lys Gln Met Lys Ala Asp Arg Glu Lys Arg Ala Met Ile
      180                      185                      190
Leu Thr Ala Glu Gly Thr Arg Glu Ala Ala Ile Lys Gln Ala Glu Gly
      195                      200                      205
Gln Lys Gln Ala Gln Ile Leu Ala Ala Glu Gly Ala Lys Gln Ala Ala
      210                      215                      220
Ile Leu Ala Ala Glu Ala Asp Arg Gln Ser Arg Met Leu Arg Ala Gln
      225                      230                      235                      240
Gly Glu Arg Ala Ala Ala Tyr Leu Gln Ala Gln Gly Gln Ala Lys Ala
      245                      250                      255
Ile Glu Lys Thr Phe Ala Ala Ile Lys Ala Gly Arg Pro Thr Pro Glu
      260                      265                      270
Met Leu Ala Tyr Gln Tyr Leu Gln Thr Leu Pro Glu Met Ala Arg Gly
      275                      280                      285
Asp Ala Asn Lys Val Trp Val Val Pro Ser Asp Phe Asn Ala Ala Leu
      290                      295                      300
Gln Gly Phe Thr Arg Leu Leu Gly Lys Pro Gly Glu Asp Gly Val Phe
      305                      310                      315                      320
Arg Phe Glu Pro Ser Pro Val Glu Asp Gln Pro Lys His Ala Ala Asp
      325                      330                      335
Gly Asp Asp Ala Glu Val Ala Gly Trp Phe Ser Thr Asp Thr Asp Pro
      340                      345                      350
Ser Ile Ala Arg Ala Val Ala Thr Ala Glu Ala Ile Ala Arg Lys Pro
      355                      360                      365
Val Glu Gly Ser Leu Gly Thr Pro Pro Arg Leu Thr Gln
      370                      375                      380

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<210> 27

<211> 232

<212> PRT

<213> Mycobacterium tuberculosis

<400> 27

```

Leu Gln Thr Ala His Arg Arg Phe Ala Ala Ala Phe Ala Ala Val Leu
  1                      5                      10                      15
Leu Ala Val Val Cys Leu Pro Ala Asn Thr Ala Ala Ala Asp Asp Lys
      20                      25                      30
Leu Pro Leu Gly Gly Gly Ala Gly Ile Val Val Asn Gly Asp Thr Met
      35                      40                      45
Cys Thr Leu Thr Thr Ile Gly His Asp Lys Asn Gly Asp Leu Ile Gly
      50                      55                      60
Phe Thr Ser Ala His Cys Gly Gly Pro Gly Ala Gln Ile Ala Ala Glu
      65                      70                      75                      80
Gly Ala Glu Asn Ala Gly Pro Val Gly Ile Met Val Ala Gly Asn Asp
      85                      90                      95

```

Gly Leu Asp Tyr Ala Val Ile Lys Phe Asp Pro Ala Lys Val Thr Pro
 100 105 110
 Val Ala Val Phe Asn Gly Phe Ala Ile Asn Gly Ile Gly Pro Asp Pro
 115 120 125
 Ser Phe Gly Gln Ile Ala Cys Lys Gln Gly Arg Thr Thr Gly Asn Ser
 130 135 140
 Cys Gly Val Thr Trp Gly Pro Gly Glu Ser Pro Gly Thr Leu Val Met
 145 150 155 160
 Gln Val Cys Gly Gly Pro Gly Asp Ser Gly Ala Pro Val Thr Val Asp
 165 170 175
 Asn Leu Leu Val Gly Met Ile His Gly Ala Phe Ser Asp Asn Leu Pro
 180 185 190
 Ser Cys Ile Thr Lys Tyr Ile Pro Leu His Thr Pro Ala Val Val Met
 195 200 205
 Ser Ile Asn Ala Asp Leu Ala Asp Ile Asn Ala Lys Asn Arg Pro Gly
 210 215 220
 Ala Gly Phe Val Pro Val Pro Ala
 225 230

<210> 28

<211> 294

<212> PRT

<213> Mycobacterium tuberculosis

<400> 28

Met Leu Met Pro Glu Met Asp Arg Arg Arg Met Met Met Met Ala Gly
 1 5 10 15
 Phe Gly Ala Leu Ala Ala Ala Leu Pro Ala Pro Thr Ala Trp Ala Asp
 20 25 30
 Pro Ser Arg Pro Ala Ala Pro Ala Gly Pro Thr Pro Ala Pro Ala Ala
 35 40 45
 Pro Ala Ala Ala Thr Gly Gly Leu Leu Phe His Asp Glu Phe Asp Gly
 50 55 60
 Pro Ala Gly Ser Val Pro Asp Pro Ser Lys Trp Gln Val Ser Asn His
 65 70 75 80
 Arg Thr Pro Ile Lys Asn Pro Val Gly Phe Asp Arg Pro Gln Phe Phe
 85 90 95
 Gly Gln Tyr Arg Asp Ser Arg Gln Asn Val Phe Leu Asp Gly Asn Ser
 100 105 110
 Asn Leu Val Leu Arg Ala Thr Arg Glu Gly Asn Arg Tyr Phe Gly Gly
 115 120 125
 Leu Val His Gly Leu Trp Arg Gly Gly Ile Gly Thr Thr Trp Glu Ala
 130 135 140
 Arg Ile Lys Phe Asn Cys Leu Ala Pro Gly Met Trp Pro Ala Trp Trp
 145 150 155 160
 Leu Ser Asn Asp Asp Pro Gly Arg Ser Gly Glu Ile Asp Leu Ile Glu
 165 170 175
 Trp Tyr Gly Asn Gly Thr Trp Pro Ser Gly Thr Thr Val His Ala Asn
 180 185 190
 Pro Asp Gly Thr Ala Phe Glu Thr Cys Pro Ile Gly Val Asp Gly Gly
 195 200 205
 Trp His Asn Trp Arg Val Thr Trp Asn Pro Ser Gly Met Tyr Phe Trp
 210 215 220
 Leu Asp Tyr Ala Asp Gly Ile Glu Pro Tyr Phe Ser Val Pro Ala Thr
 225 230 235 240
 Gly Ile Glu Asp Leu Asn Glu Pro Ile Arg Glu Trp Pro Phe Asn Asp
 245 250 255

Pro Gly Tyr Lys Val Phe Pro Val Leu Asn Leu Ala Val Gly Gly Ser
 260 265 270
 Gly Gly Gly Asp Pro Ala Thr Gly Ser Tyr Pro Gln Glu Met Leu Val
 275 280 285
 Asp Trp Val Arg Val Phe
 290

<210> 29

<211> 379

<212> PRT

<213> Mycobacterium tuberculosis

<400> 29

Val His Arg Arg Thr Ala Leu Lys Leu Pro Leu Leu Leu Ala Ala Gly
 1 5 10 15
 Thr Val Leu Gly Gln Ala Pro Arg Ala Ala Ala Glu Glu Pro Gly Arg
 20 25 30
 Trp Ser Ala Asp Arg Ala His Arg Trp Tyr Gln Ala His Gly Trp Leu
 35 40 45
 Val Gly Ala Asn Tyr Ile Thr Ser Asn Ala Ile Asn Gln Leu Glu Met
 50 55 60
 Phe Gln Pro Gly Thr Tyr Asp Pro Arg Arg Ile Asp Asn Glu Leu Gly
 65 70 75 80
 Leu Ala Arg Phe His Gly Phe Asn Thr Val Arg Val Phe Leu His Asp
 85 90 95
 Leu Leu Trp Ala Gln Asp Ala Pro Gly Phe Gln Thr Arg Leu Ala Gln
 100 105 110
 Phe Val Ala Ile Ala Ala Arg Tyr His Ile Lys Pro Leu Phe Val Leu
 115 120 125
 Phe Asp Ser Cys Trp Asp Pro Leu Pro Arg Pro Gly Arg Gln Arg Ala
 130 135 140
 Pro Arg Ala Gly Val His Asn Ser Gly Trp Val Gln Ser Pro Gly Ala
 145 150 155 160
 Glu Arg Leu Asp Asp Arg Arg Tyr Ala Ser Thr Leu Tyr Asn Tyr Val
 165 170 175
 Thr Gly Val Leu Gly Gln Phe Arg Asn Asp Asp Arg Val Leu Gly Trp
 180 185 190
 Asp Leu Trp Asn Glu Pro Asp Asn Pro Ala Arg Val Tyr Arg Lys Val
 195 200 205
 Glu Arg Lys Asp Lys Leu Glu Arg Val Ala Glu Leu Leu Pro Gln Val
 210 215 220
 Phe Arg Trp Ala Arg Thr Val Asp Pro Val Gln Pro Leu Thr Ser Gly
 225 230 235 240
 Val Trp Gln Gly Asn Trp Gly Asp Pro Gly Arg Arg Ser Thr Ile Ser
 245 250 255
 Ala Ile Gln Leu Asp Asn Ala Asp Val Ile Thr Phe His Ser Tyr Ala
 260 265 270
 Ala Pro Ala Glu Phe Glu Gly Arg Ile Ala Glu Leu Ala Pro Leu Gln
 275 280 285
 Arg Pro Ile Leu Cys Thr Glu Tyr Leu Ala Arg Ser Gln Gly Ser Thr
 290 295 300
 Val Glu Gly Ile Leu Pro Ile Ala Lys Arg His Asn Val Gly Ala Phe
 305 310 315 320
 Asn Trp Gly Leu Val Ala Gly Lys Thr Gln Thr Tyr Leu Pro Trp Asp
 325 330 335
 Ser Trp Asp His Pro Tyr Arg Ala Pro Pro Lys Val Trp Phe His Asp
 340 345 350

Leu Leu His Pro Asn Gly Arg Pro Tyr Arg Asp Gly Glu Val Gln Thr
 355 360 365
 Ile Arg Lys Leu Asn Gly Met Pro Ser Gln Asp
 370 375

<210> 30

<211> 285

<212> PRT

<213> Mycobacterium tuberculosis

<400> 30

Val Ser Thr Tyr Gly Trp Arg Ala Tyr Ala Leu Pro Val Leu Met Val
 1 5 10 15
 Leu Thr Thr Val Val Val Tyr Gln Thr Val Thr Gly Thr Ser Thr Pro
 20 25 30
 Arg Pro Ala Ala Ala Gln Thr Val Arg Asp Ser Pro Ala Ile Gly Val
 35 40 45
 Val Gly Thr Ala Ile Leu Asp Ala Pro Pro Arg Gly Leu Ala Val Phe
 50 55 60
 Asp Ala Asn Leu Pro Ala Gly Thr Leu Pro Asp Gly Gly Pro Phe Thr
 65 70 75 80
 Glu Ala Gly Asp Lys Thr Trp Arg Val Val Pro Gly Thr Thr Pro Gln
 85 90 95
 Val Gly Gln Gly Thr Val Lys Val Phe Arg Tyr Thr Val Glu Ile Glu
 100 105 110
 Asn Gly Leu Asp Pro Thr Met Tyr Gly Gly Asp Asn Ala Phe Ala Gln
 115 120 125
 Met Val Asp Gln Thr Leu Thr Asn Pro Lys Gly Trp Thr His Asn Pro
 130 135 140
 Gln Phe Ala Phe Val Arg Ile Asp Ser Gly Lys Pro Asp Phe Arg Ile
 145 150 155 160
 Ser Leu Val Ser Pro Thr Thr Val Arg Gly Gly Cys Gly Tyr Glu Phe
 165 170 175
 Arg Leu Glu Thr Ser Cys Tyr Asn Pro Ser Phe Gly Gly Met Asp Arg
 180 185 190
 Gln Ser Arg Val Phe Ile Asn Glu Ala Arg Trp Val Arg Gly Ala Val
 195 200 205
 Pro Phe Glu Gly Asp Val Gly Ser Tyr Arg Gln Tyr Val Ile Asn His
 210 215 220
 Glu Val Gly His Ala Ile Gly Tyr Leu Arg His Glu Pro Cys Asp Gln
 225 230 235 240
 Gln Gly Gly Leu Ala Pro Val Met Met Gln Gln Thr Phe Ser Thr Ser
 245 250 255
 Asn Asp Asp Ala Ala Lys Phe Asp Pro Asp Phe Val Lys Ala Asp Gly
 260 265 270
 Lys Thr Cys Arg Phe Asn Pro Trp Pro Tyr Pro Ile Pro
 275 280 285

<210> 31

<211> 456

<212> PRT

<213> Mycobacterium tuberculosis

<400> 31

Met Arg Pro Tyr Tyr Ile Ala Ile Val Gly Ser Gly Pro Ser Ala Phe
 1 5 10 15
 Phe Ala Ala Ala Ser Leu Leu Lys Ala Ala Asp Thr Thr Glu Asp Leu

20				25				30							
Asp	Met	Ala	Val	Asp	Met	Leu	Glu	Met	Leu	Pro	Thr	Pro	Trp	Gly	Leu
		35					40					45			
Val	Arg	Ser	Gly	Val	Ala	Pro	Asp	His	Pro	Lys	Ile	Lys	Ser	Ile	Ser
		50				55					60				
Lys	Gln	Phe	Glu	Lys	Thr	Ala	Glu	Asp	Pro	Arg	Phe	Arg	Phe	Phe	Gly
65				70			75			80					
Asn	Val	Val	Val	Gly	Glu	His	Val	Gln	Pro	Gly	Glu	Leu	Ser	Glu	Arg
			85			90			95						
Tyr	Asp	Ala	Val	Ile	Tyr	Ala	Val	Gly	Ala	Gln	Ser	Asp	Arg	Met	Leu
			100			105			110						
Asn	Ile	Pro	Gly	Glu	Asp	Leu	Pro	Gly	Ser	Ile	Ala	Ala	Val	Asp	Phe
		115				120				125					
Val	Gly	Trp	Tyr	Asn	Ala	His	Pro	His	Phe	Glu	Gln	Val	Ser	Pro	Asp
		130				135				140					
Leu	Ser	Gly	Ala	Arg	Ala	Val	Val	Ile	Gly	Asn	Gly	Asn	Val	Ala	Leu
145				150			155			160					
Asp	Val	Ala	Arg	Ile	Leu	Leu	Thr	Asp	Pro	Asp	Val	Leu	Ala	Arg	Thr
			165			170			175						
Asp	Ile	Ala	Asp	His	Ala	Leu	Glu	Ser	Leu	Arg	Pro	Arg	Gly	Ile	Gln
			180			185			190						
Glu	Val	Val	Ile	Val	Gly	Arg	Arg	Gly	Pro	Leu	Gln	Ala	Ala	Phe	Thr
		195				200				205					
Thr	Leu	Glu	Leu	Arg	Glu	Leu	Ala	Asp	Leu	Asp	Gly	Val	Asp	Val	Val
		210				215				220					
Ile	Asp	Pro	Ala	Glu	Leu	Asp	Gly	Ile	Thr	Asp	Glu	Asp	Ala	Ala	Ala
225				230			235			240					
Val	Gly	Lys	Val	Cys	Lys	Gln	Asn	Ile	Lys	Val	Leu	Arg	Gly	Tyr	Ala
			245			250			255						
Asp	Arg	Glu	Pro	Arg	Pro	Gly	His	Arg	Arg	Met	Val	Phe	Arg	Phe	Leu
			260			265			270						
Thr	Ser	Pro	Ile	Glu	Ile	Lys	Gly	Lys	Arg	Lys	Val	Glu	Arg	Ile	Val
		275				280				285					
Leu	Gly	Arg	Asn	Glu	Leu	Val	Ser	Asp	Gly	Ser	Gly	Arg	Val	Ala	Ala
		290				295				300					
Lys	Asp	Thr	Gly	Glu	Arg	Glu	Glu	Leu	Pro	Ala	Gln	Leu	Val	Val	Arg
305				310			315			320					
Ser	Val	Gly	Tyr	Arg	Gly	Val	Pro	Thr	Pro	Gly	Leu	Pro	Phe	Asp	Asp
			325			330			335						
Gln	Ser	Gly	Thr	Ile	Pro	Asn	Val	Gly	Gly	Arg	Ile	Asn	Gly	Ser	Pro
			340			345			350						
Asn	Glu	Tyr	Val	Val	Gly	Trp	Ile	Lys	Arg	Gly	Pro	Thr	Gly	Val	Ile
		355				360				365					
Gly	Thr	Asn	Lys	Lys	Asp	Ala	Gln	Asp	Thr	Val	Asp	Thr	Leu	Ile	Lys
		370				375				380					
Asn	Leu	Gly	Asn	Ala	Lys	Glu	Gly	Ala	Glu	Cys	Lys	Ser	Phe	Pro	Glu
385				390			395			400					
Asp	His	Ala	Asp	Gln	Val	Ala	Asp	Trp	Leu	Ala	Ala	Arg	Gln	Pro	Lys
			405			410			415						
Leu	Val	Thr	Ser	Ala	His	Trp	Gln	Val	Ile	Asp	Ala	Phe	Glu	Arg	Ala
			420			425			430						

<211> 448

<212> PRT

<213> Mycobacterium tuberculosis

<400> 32

Val	Thr	Asn	Pro	Pro	Trp	Thr	Val	Asp	Val	Val	Val	Val	Gly	Ala	Gly
1				5					10					15	
Phe	Ala	Gly	Leu	Ala	Ala	Ala	Arg	Glu	Leu	Thr	Arg	Gln	Gly	His	Glu
			20					25					30		
Val	Leu	Val	Phe	Glu	Gly	Arg	Asp	Arg	Val	Gly	Gly	Arg	Ser	Leu	Thr
		35					40					45			
Gly	Arg	Val	Ala	Gly	Val	Pro	Ala	Asp	Met	Gly	Gly	Ser	Phe	Ile	Gly
	50					55					60				
Pro	Thr	Gln	Asp	Ala	Val	Leu	Ala	Leu	Ala	Thr	Glu	Leu	Gly	Ile	Pro
65					70					75				80	
Thr	Thr	Pro	Thr	His	Arg	Asp	Gly	Arg	Asn	Val	Ile	Gln	Trp	Arg	Gly
				85					90					95	
Ser	Ala	Arg	Ser	Tyr	Arg	Gly	Thr	Ile	Pro	Lys	Leu	Ser	Leu	Thr	Gly
			100					105					110		
Leu	Ile	Asp	Ile	Gly	Arg	Leu	Arg	Trp	Gln	Phe	Glu	Arg	Ile	Ala	Arg
		115					120					125			
Gly	Val	Pro	Val	Ala	Ala	Pro	Trp	Asp	Ala	Arg	Arg	Ala	Arg	Glu	Leu
	130					135					140				
Asp	Asp	Val	Ser	Leu	Gly	Glu	Trp	Leu	Arg	Leu	Val	Arg	Ala	Thr	Ser
145					150					155					160
Ser	Ser	Arg	Asn	Leu	Met	Ala	Ile	Met	Thr	Arg	Val	Thr	Trp	Gly	Cys
			165						170					175	
Glu	Pro	Asp	Asp	Val	Ser	Met	Leu	His	Ala	Ala	Arg	Tyr	Val	Arg	Ala
			180					185					190		
Ala	Gly	Gly	Leu	Asp	Arg	Leu	Leu	Asp	Val	Lys	Asn	Gly	Ala	Gln	Gln
		195					200					205			
Asp	Arg	Val	Pro	Gly	Gly	Thr	Gln	Gln	Ile	Ala	Gln	Ala	Ala	Ala	Ala
	210					215					220				
Gln	Leu	Gly	Ala	Arg	Val	Leu	Leu	Asn	Ala	Ala	Val	Arg	Arg	Ile	Asp
225					230					235				240	
Arg	His	Gly	Ala	Gly	Val	Thr	Val	Thr	Ser	Asp	Gln	Gly	Gln	Ala	Glu
			245						250					255	
Ala	Gly	Phe	Val	Ile	Val	Ala	Ile	Pro	Pro	Ala	His	Arg	Val	Ala	Ile
			260					265					270		
Glu	Phe	Asp	Pro	Pro	Leu	Pro	Pro	Glu	Tyr	Gln	Gln	Leu	Ala	His	His
		275				280						285			
Trp	Pro	Gln	Gly	Arg	Leu	Ser	Lys	Ala	Tyr	Ala	Ala	Tyr	Ser	Thr	Pro
	290					295					300				
Phe	Trp	Arg	Ala	Ser	Gly	Tyr	Ser	Gly	Gln	Ala	Leu	Ser	Asp	Glu	Ala
305					310					315				320	
Pro	Val	Phe	Ile	Thr	Phe	Asp	Val	Ser	Pro	His	Ala	Asp	Gly	Pro	Gly
			325						330				335		
Ile	Leu	Met	Gly	Phe	Val	Asp	Ala	Arg	Gly	Phe	Asp	Ser	Leu	Pro	Ile
			340					345					350		
Glu	Glu	Arg	Arg	Arg	Asp	Ala	Leu	Arg	Cys	Phe	Ala	Ser	Leu	Phe	Gly
		355				360						365			
Asp	Glu	Ala	Leu	Asp	Pro	Leu	Asp	Tyr	Val	Asp	Tyr	Arg	Trp	Gly	Thr
	370					375					380				
Glu	Glu	Phe	Ala	Pro	Gly	Gly	Pro	Thr	Ala	Ala	Val	Pro	Pro	Gly	Ser
385					390					395				400	
Trp	Thr	Lys	Tyr	Gly	His	Trp	Leu	Arg	Glu	Pro	Val	Gly	Pro	Ile	His
			405						410					415	

Trp Ala Ser Thr Glu Thr Ala Asp Glu Trp Thr Gly Tyr Phe Asp Gly
 420 425 430
 Ala Val Arg Ser Gly Gln Arg Ala Ala Ala Glu Val Ala Ala Leu Leu
 435 440 445

<210> 33

<211> 112

<212> PRT

<213> Mycobacterium tuberculosis

<400> 33

Met Lys Gly Thr Lys Leu Ala Val Val Val Gly Met Thr Val Ala Ala
 1 5 10 15
 Val Ser Leu Ala Ala Pro Ala Gln Ala Asp Asp Tyr Asp Ala Pro Phe
 20 25 30
 Asn Asn Thr Ile His Arg Phe Gly Ile Tyr Gly Pro Gln Asp Tyr Asn
 35 40 45
 Ala Trp Leu Ala Lys Ile Ser Cys Glu Arg Leu Ser Arg Gly Val Asp
 50 55 60
 Gly Asp Ala Tyr Lys Ser Ala Thr Phe Leu Gln Arg Asn Leu Pro Arg
 65 70 75 80
 Gly Thr Thr Gln Gly Gln Ala Phe Gln Phe Leu Gly Ala Ala Ile Asp
 85 90 95
 His Tyr Cys Pro Glu His Val Gly Val Leu Gln Arg Ala Gly Thr Arg
 100 105 110

<210> 34

<211> 148

<212> PRT

<213> Mycobacterium tuberculosis

<400> 34

Met Lys Ala Leu Val Ala Val Ser Ala Val Ala Val Val Ala Leu Leu
 1 5 10 15
 Gly Val Ser Ser Ala Gln Ala Asp Pro Glu Ala Asp Pro Gly Ala Gly
 20 25 30
 Glu Ala Asn Tyr Gly Gly Pro Pro Ser Ser Pro Arg Leu Val Asp His
 35 40 45
 Thr Glu Trp Ala Gln Trp Gly Ser Leu Pro Ser Leu Arg Val Tyr Pro
 50 55 60
 Ser Gln Val Gly Arg Thr Ala Ser Arg Arg Leu Gly Met Ala Ala Ala
 65 70 75 80
 Asp Ala Ala Trp Ala Glu Val Leu Ala Leu Ser Pro Glu Ala Asp Thr
 85 90 95
 Ala Gly Met Arg Ala Gln Phe Ile Cys His Trp Gln Tyr Ala Glu Ile
 100 105 110
 Arg Gln Pro Gly Lys Pro Ser Trp Asn Leu Glu Pro Trp Arg Pro Val
 115 120 125
 Val Asp Asp Ser Glu Met Leu Ala Ser Gly Cys Asn Pro Gly Ser Pro
 130 135 140
 Glu Glu Ser Phe
 145

<210> 35

<211> 407

<212> PRT

<213> Mycobacterium tuberculosis

<400> 35

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Met Ser Gly Arg His Arg Lys Pro Thr Thr Ser Asn Val Ser Val Ala
 1           5           10           15
Lys Ile Ala Phe Thr Gly Ala Val Leu Gly Gly Gly Gly Ile Ala Met
          20           25           30
Ala Ala Gln Ala Thr Ala Ala Thr Asp Gly Glu Trp Asp Gln Val Ala
      35           40           45
Arg Cys Glu Ser Gly Gly Asn Trp Ser Ile Asn Thr Gly Asn Gly Tyr
 50           55           60
Leu Gly Gly Leu Gln Phe Thr Gln Ser Thr Trp Ala Ala His Gly Gly
65           70           75           80
Gly Glu Phe Ala Pro Ser Ala Gln Leu Ala Ser Arg Glu Gln Gln Ile
          85           90           95
Ala Val Gly Glu Arg Val Leu Ala Thr Gln Gly Arg Gly Ala Trp Pro
          100          105          110
Val Cys Gly Arg Gly Leu Ser Asn Ala Thr Pro Arg Glu Val Leu Pro
      115          120          125
Ala Ser Ala Ala Met Asp Ala Pro Leu Asp Ala Ala Ala Val Asn Gly
      130          135          140
Glu Pro Ala Pro Leu Ala Pro Pro Pro Ala Asp Pro Ala Pro Pro Val
145          150          155          160
Glu Leu Ala Ala Asn Asp Leu Pro Ala Pro Leu Gly Glu Pro Leu Pro
          165          170          175
Ala Ala Pro Ala Asp Pro Ala Pro Pro Ala Asp Leu Ala Pro Pro Ala
      180          185          190
Pro Ala Asp Val Ala Pro Pro Val Glu Leu Ala Val Asn Asp Leu Pro
      195          200          205
Ala Pro Leu Gly Glu Pro Leu Pro Ala Ala Pro Ala Asp Pro Ala Pro
      210          215          220
Pro Ala Asp Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Ala
225          230          235          240
Pro Ala Asp Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Val
          245          250          255
Glu Leu Ala Val Asn Asp Leu Pro Ala Pro Leu Gly Glu Pro Leu Pro
          260          265          270
Ala Ala Pro Ala Glu Leu Ala Pro Pro Ala Asp Leu Ala Pro Ala Ser
      275          280          285
Ala Asp Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Ala Pro
      290          295          300
Ala Glu Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Ala Ala
305          310          315          320
Val Asn Glu Gln Thr Ala Pro Gly Asp Gln Pro Ala Thr Ala Pro Gly
          325          330          335
Gly Pro Val Gly Leu Ala Thr Asp Leu Glu Leu Pro Glu Pro Asp Pro
      340          345          350
Gln Pro Ala Asp Ala Pro Pro Pro Gly Asp Val Thr Glu Ala Pro Ala
      355          360          365
Glu Thr Pro Gln Val Ser Asn Ile Ala Tyr Thr Lys Lys Leu Trp Gln
      370          375          380
Ala Ile Arg Ala Gln Asp Val Cys Gly Asn Asp Ala Leu Asp Ser Leu
385          390          395          400
Ala Gln Pro Tyr Val Ile Gly
          405

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<210> 36

<211> 167

<212> PRT

<213> Mycobacterium tuberculosis

<400> 36

```

Met Ser Gly His Arg Lys Lys Ala Met Leu Ala Leu Ala Ala Ala Ser
 1           5           10           15
Leu Ala Ala Thr Leu Ala Pro Asn Ala Val Ala Ala Ala Glu Pro Ser
           20           25           30
Trp Asn Gly Gln Tyr Leu Val Thr Leu Ser Ala Asn Ala Lys Thr Gly
      35           40           45
Thr Ser Met Ala Ala Asn Arg Pro Glu Tyr Pro His Lys Ala Asn Tyr
      50           55           60
Thr Phe Ser Ser Arg Cys Ala Ser Asp Val Cys Ile Ala Thr Val Val
65           70           75           80
Asp Ala Pro Pro Pro Lys Asn Glu Phe Ile Pro Arg Pro Ile Glu Tyr
           85           90           95
Thr Trp Asn Gly Thr Gln Trp Val Arg Glu Ile Ser Trp Gln Trp Asp
           100          105          110
Cys Leu Leu Pro Asp Gly Thr Ile Glu Tyr Ala Pro Ala Lys Ser Ile
           115          120          125
Thr Ala Tyr Thr Pro Gly Gln Tyr Gly Ile Leu Thr Gly Val Phe His
           130          135          140
Thr Asp Ile Ala Ser Gly Thr Cys Lys Gly Asn Val Asp Met Pro Val
145          150          155          160
Ser Ala Lys Pro Ile Val Gly
           165

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<210> 37

<211> 227

<212> PRT

<213> Mycobacterium tuberculosis

<400> 37

```

Met Arg Tyr Leu Ile Ala Thr Ala Val Leu Val Ala Val Val Leu Val
 1           5           10           15
Gly Trp Pro Ala Ala Gly Ala Pro Pro Ser Cys Ala Gly Leu Gly Gly
           20           25           30
Thr Val Gln Ala Gly Gln Ile Cys His Val His Ala Ser Gly Pro Lys
           35           40           45
Tyr Met Leu Asp Met Thr Phe Pro Val Asp Tyr Pro Asp Gln Gln Ala
      50           55           60
Leu Thr Asp Tyr Ile Thr Gln Asn Arg Asp Gly Phe Val Asn Val Ala
65           70           75           80
Gln Gly Ser Pro Leu Arg Asp Gln Pro Tyr Gln Met Asp Ala Thr Ser
           85           90           95
Glu Gln His Ser Ser Gly Gln Pro Pro Gln Ala Thr Arg Ser Val Val
           100          105          110
Leu Lys Phe Phe Gln Asp Leu Gly Gly Ala His Pro Ser Thr Trp Tyr
           115          120          125
Lys Ala Phe Asn Tyr Asn Leu Ala Thr Ser Gln Pro Ile Thr Phe Asp
           130          135          140
Thr Leu Phe Val Pro Gly Thr Thr Pro Leu Asp Ser Ile Tyr Pro Ile
145          150          155          160
Val Gln Arg Glu Leu Ala Arg Gln Thr Gly Phe Gly Ala Ala Ile Leu
           165          170          175
Pro Ser Thr Gly Leu Asp Pro Ala His Tyr Gln Asn Phe Ala Ile Thr
           180          185          190

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Asp Asp Ser Leu Ile Phe Tyr Phe Ala Gln Gly Glu Leu Leu Pro Ser
 195 200 205
 Phe Val Gly Ala Cys Gln Ala Gln Val Pro Arg Ser Ala Ile Pro Pro
 210 215 220
 Leu Ala Ile
 225

<210> 38

<211> 172

<212> PRT

<213> Mycobacterium tuberculosis

<400> 38

Leu Lys Asn Ala Arg Thr Thr Leu Ile Ala Ala Ala Ile Ala Gly Thr
 1 5 10 15
 Leu Val Thr Thr Ser Pro Ala Gly Ile Ala Asn Ala Asp Asp Ala Gly
 20 25 30
 Leu Asp Pro Asn Ala Ala Ala Gly Pro Asp Ala Val Gly Phe Asp Pro
 35 40 45
 Asn Leu Pro Pro Ala Pro Asp Ala Ala Pro Val Asp Thr Pro Pro Ala
 50 55 60
 Pro Glu Asp Ala Gly Phe Asp Pro Asn Leu Pro Pro Pro Leu Ala Pro
 65 70 75 80
 Asp Phe Leu Ser Pro Pro Ala Glu Glu Ala Pro Pro Val Pro Val Ala
 85 90 95
 Tyr Ser Val Asn Trp Asp Ala Ile Ala Gln Cys Glu Ser Gly Gly Asn
 100 105 110
 Trp Ser Ile Asn Thr Gly Asn Gly Tyr Tyr Gly Gly Leu Arg Phe Thr
 115 120 125
 Ala Gly Thr Trp Arg Ala Asn Gly Gly Ser Gly Ser Ala Ala Asn Ala
 130 135 140
 Ser Arg Glu Glu Gln Ile Arg Val Ala Glu Asn Val Leu Arg Ser Gln
 145 150 155 160
 Gly Ile Arg Ala Trp Pro Val Cys Gly Arg Arg Gly
 165 170

<210> 39

<211> 508

<212> PRT

<213> Mycobacterium tuberculosis

<400> 39

Met Ser Thr Ile Phe Asp Ile Arg Ser Leu Arg Leu Pro Lys Leu Ser
 1 5 10 15
 Ala Lys Val Val Val Gly Gly Leu Val Val Val Leu Ala Val Val
 20 25 30
 Ala Ala Ala Ala Gly Ala Arg Leu Tyr Arg Lys Leu Thr Thr Thr Thr
 35 40 45
 Val Val Ala Tyr Phe Ser Glu Ala Leu Ala Leu Tyr Pro Gly Asp Lys
 50 55 60
 Val Gln Ile Met Gly Val Arg Val Gly Ser Ile Asp Lys Ile Glu Pro
 65 70 75 80
 Ala Gly Asp Lys Met Arg Val Thr Leu His Tyr Ser Asn Lys Tyr Gln
 85 90 95
 Val Pro Ala Thr Ala Thr Ala Ser Ile Leu Asn Pro Ser Leu Val Ala
 100 105 110
 Ser Arg Thr Ile Gln Leu Ser Pro Pro Tyr Thr Gly Gly Pro Val Leu

115	120	125
Gln Asp Gly Ala Val Ile Pro Ile Glu Arg Thr Gln Val Pro Val Glu		
130	135	140
Trp Asp Gln Leu Arg Asp Ser Ile Asn Gly Ile Leu Arg Gln Leu Gly		
145	150	155
Pro Thr Glu Arg Gln Pro Lys Gly Pro Phe Gly Asp Leu Ile Glu Ser		
165	170	175
Ala Ala Asp Asn Leu Ala Gly Lys Gly Arg Gln Leu Asn Glu Thr Leu		
180	185	190
Asn Ser Leu Ser Gln Ala Leu Thr Ala Leu Asn Glu Gly Arg Gly Asp		
195	200	205
Phe Val Ala Ile Thr Arg Ser Leu Ala Leu Phe Val Ser Ala Leu Tyr		
210	215	220
Gln Asn Asp Gln Gln Phe Val Ala Leu Asn Glu Asn Leu Ala Glu Phe		
225	230	235
Thr Asp Trp Phe Thr Lys Ser Asp His Asp Leu Ala Asp Thr Val Glu		
245	250	255
Arg Ile Asp Asp Val Leu Gly Thr Val Arg Lys Phe Val Ser Asp Asn		
260	265	270
Arg Ser Val Leu Ala Ala Asp Val Asn Asn Leu Ala Asp Ala Thr Thr		
275	280	285
Thr Leu Val Gln Pro Glu Pro Arg Asp Gly Leu Glu Thr Ala Leu His		
290	295	300
Val Leu Pro Thr Tyr Ala Ser Asn Phe Asn Asn Leu Tyr Tyr Pro Leu		
305	310	315
His Ser Ser Leu Val Gly Gln Phe Val Phe Pro Asn Phe Ala Asn Pro		
325	330	335
Ile Gln Leu Ile Cys Ser Ala Ile Gln Ala Gly Ser Arg Leu Gly Tyr		
340	345	350
Gln Glu Ser Ala Glu Leu Cys Ala Gln Tyr Leu Ala Pro Val Leu Asp		
355	360	365
Ala Leu Lys Phe Asn Tyr Leu Pro Phe Gly Ser Asn Pro Phe Ser Ser		
370	375	380
Ala Ala Thr Leu Pro Lys Glu Val Ala Tyr Ser Glu Glu Arg Leu Arg		
385	390	395
Pro Pro Pro Gly Tyr Lys Asp Thr Thr Val Pro Gly Ile Phe Ser Arg		
405	410	415
Asp Thr Pro Phe Ser His Gly Asn His Glu Pro Gly Trp Val Val Ala		
420	425	430
Pro Gly Met Gln Gly Met Gln Val Gln Pro Phe Thr Ala Asn Met Leu		
435	440	445
Thr Pro Glu Ser Leu Ala Glu Leu Leu Gly Gly Pro Asp Ile Ala Pro		
450	455	460
Pro Pro Pro Gly Thr Asn Leu Pro Gly Pro Pro Asn Ala Tyr Asp Glu		
465	470	475
Ser Asn Pro Leu Pro Pro Trp Tyr Pro Gln Pro Ala Ser Leu Pro		
485	490	495
Ala Ala Gly Ala Thr Gly Gln Pro Gly Pro Gly Gln		
500	505	

<210> 40

<211> 230

<212> PRT

<213> Mycobacterium tuberculosis

<400> 40

Met Lys Arg Ser Met Lys Ser Gly Ser Phe Ala Ile Gly Leu Ala Met

1	5	10	15
Met Leu Ala Pro	Met Val Ala Ala	Pro Gly Leu Ala	Ala Ala Asp Pro
20	25	30	
Ala Thr Arg Pro	Val Asp Tyr Gln	Gln Ile Thr Asp	Val Val Ile Ala
35	40	45	
Arg Gly Leu Ser	Gln Arg Gly Val	Pro Phe Ser Trp	Ala Gly Gly Gly
50	55	60	
Ile Ser Gly Pro	Thr Arg Gly Thr	Gly Thr Gly Ile	Asn Thr Val Gly
65	70	75	80
Phe Asp Ala Ser	Gly Leu Ile Gln	Tyr Ala Tyr Ala	Gly Ala Gly Leu
85	90	95	
Lys Leu Pro Arg	Ser Ser Gly Gln	Met Tyr Lys Val	Gly Gln Lys Val
100	105	110	
Leu Pro Gln Gln	Ala Arg Lys Gly	Asp Leu Ile Phe	Tyr Gly Pro Glu
115	120	125	
Gly Thr Gln Ser	Val Ala Leu Tyr	Leu Gly Lys Gly	Gln Met Leu Glu
130	135	140	
Val Gly Asp Val	Val Gln Val Ser	Pro Val Arg Thr	Asn Gly Met Thr
145	150	155	160
Pro Tyr Leu Val	Arg Val Leu Gly	Thr Gln Pro Thr	Pro Val Gln Gln
165	170	175	
Ala Pro Val Gln	Pro Ala Pro Val	Gln Gln Ala Pro	Val Gln Gln Ala
180	185	190	
Pro Val Gln Gln	Ala Pro Val Gln	Gln Ala Pro Val	Gln Gln Ala Pro
195	200	205	
Val Gln Gln Ala	Pro Val Gln Gln	Ala Pro Val Gln	Pro Pro Phe
210	215	220	
Gly Thr Ala Arg	Ser Arg		
225	230		

<210> 41

<211> 111

<212> PRT

<213> Mycobacterium tuberculosis

<400> 41

Met Phe Thr Arg	Arg Phe Ala Ala	Ser Met Val Gly	Thr Thr Leu Thr
1	5	10	15
Ala Ala Thr Leu	Gly Leu Ala Ala	Leu Gly Phe Ala	Gly Thr Ala Ser
20	25	30	
Ala Ser Ser Thr	Asp Glu Ala Phe	Leu Ala Gln Leu	Gln Ala Asp Gly
35	40	45	
Ile Thr Pro Pro	Ser Ala Ala Arg	Ala Ile Lys Asp	Ala His Ala Val
50	55	60	
Cys Asp Ala Leu	Asp Glu Gly His	Ser Ala Lys Ala	Val Ile Lys Ala
65	70	75	80
Val Ala Lys Ala	Thr Gly Leu Ser	Ala Lys Gly Ala	Lys Thr Phe Ala
85	90	95	
Val Asp Ala Ala	Ser Ala Tyr Cys	Pro Gln Tyr Val	Thr Ser Ser
100	105	110	

<210> 42

<211> 520

<212> PRT

<213> Mycobacterium tuberculosis

<400> 42

Met	Ala	Ala	Met	Trp	Arg	Arg	Arg	Pro	Leu	Ser	Ser	Ala	Leu	Leu	Ser
1				5					10				15		
Phe	Gly	Leu	Leu	Leu	Gly	Gly	Leu	Pro	Leu	Ala	Ala	Pro	Pro	Leu	Ala
			20					25					30		
Gly	Ala	Thr	Glu	Glu	Pro	Gly	Ala	Gly	Gln	Thr	Pro	Gly	Ala	Pro	Val
		35					40					45			
Val	Ala	Pro	Gln	Gln	Ser	Trp	Asn	Ser	Cys	Arg	Glu	Phe	Ile	Ala	Asp
		50				55				60					
Thr	Ser	Glu	Ile	Arg	Thr	Ala	Arg	Cys	Ala	Thr	Val	Ser	Val	Pro	Val
65					70					75					80
Asp	Tyr	Asp	Gln	Pro	Gly	Gly	Thr	Gln	Ala	Lys	Leu	Ala	Val	Ile	Arg
			85						90					95	
Val	Pro	Ala	Thr	Gly	Gln	Arg	Phe	Gly	Ala	Leu	Leu	Val	Asn	Pro	Gly
			100					105					110		
Gly	Pro	Gly	Ala	Ser	Ala	Val	Asp	Met	Val	Ala	Ala	Met	Ala	Pro	Ala
		115					120					125			
Ile	Ala	Asp	Thr	Asp	Ile	Leu	Arg	His	Phe	Asp	Leu	Val	Gly	Phe	Asp
		130				135					140				
Pro	Arg	Gly	Val	Gly	His	Ser	Thr	Pro	Ala	Leu	Arg	Cys	Arg	Thr	Asp
145					150					155					160
Ala	Glu	Phe	Asp	Ala	Tyr	Arg	Arg	Asp	Pro	Met	Ala	Asp	Tyr	Ser	Pro
			165						170					175	
Ala	Gly	Val	Thr	His	Val	Glu	Gln	Val	Tyr	Arg	Gln	Leu	Ala	Gln	Asp
			180					185					190		
Cys	Val	Asp	Arg	Met	Gly	Phe	Ser	Phe	Leu	Ala	Asn	Ile	Gly	Thr	Ala
		195				200						205			
Ser	Val	Ala	Arg	Asp	Met	Asp	Met	Val	Arg	Gln	Ala	Leu	Gly	Asp	Asp
		210				215					220				
Gln	Ile	Asn	Tyr	Leu	Gly	Tyr	Ser	Tyr	Gly	Thr	Glu	Leu	Gly	Thr	Ala
225					230					235					240
Tyr	Leu	Glu	Arg	Phe	Gly	Thr	His	Val	Arg	Ala	Met	Val	Leu	Asp	Gly
			245						250					255	
Ala	Ile	Asp	Pro	Ala	Val	Ser	Pro	Ile	Glu	Glu	Ser	Ile	Ser	Gln	Met
			260					265					270		
Ala	Gly	Phe	Gln	Thr	Ala	Phe	Asn	Asp	Tyr	Ala	Ala	Asp	Cys	Ala	Arg
		275					280					285			
Ser	Pro	Ala	Cys	Pro	Leu	Gly	Thr	Asp	Ser	Ala	Gln	Trp	Val	Asn	Arg
		290				295					300				
Tyr	His	Ala	Leu	Val	Asp	Pro	Leu	Val	Gln	Lys	Pro	Gly	Lys	Thr	Ser
305					310					315					320
Asp	Pro	Arg	Gly	Leu	Ser	Tyr	Ala	Asp	Ala	Thr	Thr	Gly	Thr	Ile	Asn
			325						330					335	
Ala	Leu	Tyr	Ser	Pro	Gln	Arg	Trp	Lys	Tyr	Leu	Thr	Ser	Gly	Leu	Leu
			340					345					350		
Gly	Leu	Gln	Arg	Gly	Ser	Asp	Ala	Gly	Asp	Leu	Leu	Val	Leu	Ala	Asp
		355					360					365			
Asp	Tyr	Asp	Gly	Arg	Asp	Ala	Asp	Gly	His	Tyr	Ser	Asn	Asp	Gln	Asp
		370				375					380				
Ala	Phe	Asn	Ala	Val	Arg	Cys	Val	Asp	Ala	Pro	Thr	Pro	Ala	Asp	Pro
385					390					395					400
Ala	Ala	Trp	Val	Ala	Ala	Asp	Gln	Arg	Ile	Arg	Gln	Val	Ala	Pro	Phe
			405						410					415	
Leu	Ser	Tyr	Gly	Gln	Phe	Thr	Gly	Ser	Ala	Pro	Arg	Asp	Leu	Cys	Ala
			420					425					430		
Leu	Trp	Pro	Val	Pro	Ala	Thr	Ser	Thr	Pro	His	Pro	Ala	Ala	Pro	Ala
		435					440					445			
Gly	Ala	Gly	Lys	Val	Val	Val	Val	Ser	Thr	Thr	His	Asp	Pro	Ala	Thr

450 455 460
 Pro Tyr Gln Ser Gly Val Asp Leu Ala Arg Gln Leu Gly Ala Pro Leu
 465 470 475 480
 Ile Thr Phe Asp Gly Thr Gln His Thr Ala Val Phe Asp Gly Asn Gln
 485 490 495
 Cys Val Asp Ser Ala Val Met His Tyr Phe Leu Asp Gly Thr Leu Pro
 500 505 510
 Pro Thr Ser Leu Arg Cys Ala Pro
 515 520

<210> 43

<211> 136

<212> PRT

<213> Mycobacterium tuberculosis

<400> 43

Met Lys Thr Gly Thr Ala Thr Thr Arg Arg Arg Leu Leu Ala Val Leu
 1 5 10 15
 Ile Ala Leu Ala Leu Pro Gly Ala Ala Val Ala Leu Leu Ala Glu Pro
 20 25 30
 Ser Ala Thr Gly Ala Ser Asp Pro Cys Ala Ala Ser Glu Val Ala Arg
 35 40 45
 Thr Val Gly Ser Val Ala Lys Ser Met Gly Asp Tyr Leu Asp Ser His
 50 55 60
 Pro Glu Thr Asn Gln Val Met Thr Ala Val Leu Gln Gln Gln Val Gly
 65 70 75 80
 Pro Gly Ser Val Ala Ser Leu Lys Ala His Phe Glu Ala Asn Pro Lys
 85 90 95
 Val Ala Ser Asp Leu His Ala Leu Ser Gln Pro Leu Thr Asp Leu Ser
 100 105 110
 Thr Arg Cys Ser Leu Pro Ile Ser Gly Leu Gln Ala Ile Gly Leu Met
 115 120 125
 Gln Ala Val Gln Gly Ala Arg Arg
 130 135

<210> 44

<211> 148

<212> PRT

<213> Mycobacterium tuberculosis

<400> 44

Met Ser Arg Leu Ser Ser Ile Leu Arg Ala Gly Ala Ala Phe Leu Val
 1 5 10 15
 Leu Gly Ile Ala Ala Ala Thr Phe Pro Gln Ser Ala Ala Ala Asp Ser
 20 25 30
 Thr Glu Asp Phe Pro Ile Pro Arg Arg Met Ile Ala Thr Thr Cys Asp
 35 40 45
 Ala Glu Gln Tyr Leu Ala Ala Val Arg Asp Thr Ser Pro Val Tyr Tyr
 50 55 60
 Gln Arg Tyr Met Ile Asp Phe Asn Asn His Ala Asn Leu Gln Gln Ala
 65 70 75 80
 Thr Ile Asn Lys Ala His Trp Phe Phe Ser Leu Ser Pro Ala Glu Arg
 85 90 95
 Arg Asp Tyr Ser Glu His Phe Tyr Asn Gly Asp Pro Leu Thr Phe Ala
 100 105 110
 Trp Val Asn His Met Lys Ile Phe Phe Asn Asn Lys Gly Val Val Ala
 115 120 125

Lys Gly Thr Glu Val Cys Asn Gly Tyr Pro Ala Gly Asp Met Ser Val
 130 135 140
 Trp Asn Trp Ala
 145

<210> 45

<211> 145

<212> PRT

<213> Mycobacterium tuberculosis

<400> 45

Val Thr Lys Arg Thr Ile Thr Pro Met Thr Ser Met Gly Asp Leu Leu
 1 5 10 15
 Gly Pro Glu Pro Ile Leu Leu Pro Gly Asp Ser Asp Ala Glu Ala Glu
 20 25 30
 Leu Leu Ala Asn Glu Ser Pro Ser Ile Val Ala Ala Ala His Pro Ser
 35 40 45
 Ala Ser Val Ala Trp Ala Val Leu Ala Glu Gly Ala Leu Ala Asp Asp
 50 55 60
 Lys Thr Val Thr Ala Tyr Ala Tyr Ala Arg Thr Gly Tyr His Arg Gly
 65 70 75 80
 Leu Asp Gln Leu Arg Arg His Gly Trp Lys Gly Phe Gly Pro Val Pro
 85 90 95
 Tyr Ser His Gln Pro Asn Arg Gly Phe Leu Arg Cys Val Ala Ala Leu
 100 105 110
 Ala Arg Ala Ala Ala Ala Ile Gly Glu Thr Asp Glu Tyr Gly Arg Cys
 115 120 125
 Leu Asp Leu Leu Asp Asp Cys Asp Pro Ala Ala Arg Pro Ala Leu Gly
 130 135 140
 Leu
 145

<210> 46

<211> 143

<212> PRT

<213> Mycobacterium tuberculosis

<400> 46

Val Ile Ile Pro Asp Ile Asn Leu Leu Leu Tyr Ala Val Ile Thr Gly
 1 5 10 15
 Phe Pro Gln His Arg Arg Ala His Ala Trp Trp Gln Asp Thr Val Asn
 20 25 30
 Gly His Thr Arg Ile Gly Leu Thr Tyr Pro Ala Leu Phe Gly Phe Leu
 35 40 45
 Arg Ile Ala Thr Ser Ala Arg Val Leu Ala Ala Pro Leu Pro Thr Ala
 50 55 60
 Asp Ala Ile Ala Tyr Val Arg Glu Trp Leu Ser Gln Pro Asn Val Asp
 65 70 75 80
 Leu Leu Thr Ala Gly Pro Arg His Leu Asp Ile Ala Leu Gly Leu Leu
 85 90 95
 Asp Lys Leu Gly Thr Ala Ser His Leu Thr Thr Asp Val Gln Leu Ala
 100 105 110
 Ala Tyr Gly Ile Glu Tyr Asp Ala Glu Ile His Ser Ser Asp Thr Asp
 115 120 125
 Phe Ala Arg Phe Ala Asp Leu Lys Trp Thr Asp Pro Leu Arg Glu
 130 135 140

<210> 47
 <211> 171
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 47
 Leu Thr Asp Pro Arg His Thr Val Arg Ile Ala Val Gly Ala Thr Ala
 1 5 10 15
 Leu Gly Val Ser Ala Leu Gly Ala Thr Leu Pro Ala Cys Ser Ala His
 20 25 30
 Ser Gly Pro Gly Ser Pro Pro Ser Ala Pro Ser Ala Ala Ala
 35 40 45
 Thr Val Met Val Glu Gly His Thr His Thr Ile Ser Gly Val Val Glu
 50 55 60
 Cys Arg Thr Ser Pro Ala Val Arg Thr Ala Thr Pro Ser Glu Ser Gly
 65 70 75 80
 Thr Gln Thr Thr Arg Val Asn Ala His Asp Asp Ser Ala Ser Val Thr
 85 90 95
 Leu Ser Leu Ser Asp Ser Thr Pro Pro Asp Val Asn Gly Phe Gly Ile
 100 105 110
 Ser Leu Lys Ile Gly Ser Val Asp Tyr Gln Met Pro Tyr Gln Pro Val
 115 120 125
 Gln Ser Pro Thr Gln Val Glu Ala Thr Arg Gln Gly Lys Ser Tyr Thr
 130 135 140
 Leu Thr Gly Thr Gly His Ala Val Ile Pro Gly Gln Thr Gly Met Arg
 145 150 155 160
 Glu Leu Pro Phe Gly Val His Val Thr Cys Pro
 165 170

<210> 48
 <211> 312
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 48
 atgaatcgca tcgtgcagtt cggagtttcc gccgtggccg cggcggcgat cggcatcgga 60
 gccgggtcgg ggatcgcggc ggcgttcgac ggcgaggacg aggtgaccgg ccccgacgcc 120
 gaccgcgcgc gcgcgcgcgc ggtgcaggcg gtcccgggcg gcaccgccgg agaagtcgag 180
 accgagaccg gcgaaggcgc cgccgcctac ggcgtgctgg tcacccggcc cgacggcacc 240
 cgtgtcgagg tcacactgga ccgggatttc cgggttctgg acaccgaacc ggccgacggg 300
 gacggcgggt ag 312

<210> 49
 <211> 333
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 49
 atgaggctgt cgttgaccgc attgagcgcc ggtgtaggcg ccgtggcaat gtcgttgacc 60
 gtcggggcgg gggtcgcctc cgcagatccc gtggacgcgg tcattaacac cacctgcaat 120
 tacgggcagg tagtagctgc gctcaacgcg acggatccgg gggctgccgc acagttcaac 180
 gcctcaccgg tggcgcagtc ctatttgcgc aatttcctcg ccgcaccgcc acctcagcgc 240
 gctgccatgg ccgcgcaatt gcaagctgtg ccggggggcg cacagtacat cggccttgctc 300
 gagtcgggtg ccggctcctg caacaactat taa 333

<210> 50
 <211> 846

<212> DNA

<213> Mycobacterium tuberculosis

<400> 50

atgttcaccg	gcatacgtag	ccatgccggc	gccctgggtg	cgccttagt	ggtgctgac	60
ggcgccgcaa	ttctgcacga	cggcccagca	gcggccgacc	caaaccaaga	cgatcggttt	120
ctggcgctgc	tcgagaaaaa	ggaaatcccc	gccgtcgcga	atgtgcctcg	cgatcatcgac	180
gcgggccaca	aagtgtgtcg	caaactcgat	ggcgccatgc	cggatgaacga	cattgtggac	240
gggttacgca	acgatgccta	caacatagac	ccggtcatgc	gcctctaccc	tgccgcctc	300
acgacgacca	tgacccgatt	tatcagtgcg	gcagtggaga	tctactgccc	gaaccatcac	360
agcaagatgg	cgttcgccat	ggccaatttc	gagccgggat	cgaatgaacc	gacgcacgc	420
gttgcggcgt	ccacgcgcag	cgcggtcaac	tcgggaagcg	acctgcgggc	gtcgggtgcg	480
gacatgacca	tcattgtcgcc	gggatggcgg	gaaccgacgg	gtgcgatgct	tgccctcggg	540
ctcggagcgg	ttcgcgcggg	ggatccccctg	ataccgaatc	cgcgcgcgat	tcgggtaccg	600
ccgcccggcg	cgcagaccct	gattccaccc	ccgcccgatc	tgccaccgcc	gccaccgcga	660
ccagcgccgc	cgcaacagcc	gccgcccccg	ccgcccagag	ttgagccgcc	tgctgggtgt	720
ccgcagtcgg	ggggcgctgc	cggcagtggc	ggcgccggca	gcgggtgggg	cggcggtggg	780
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<210> 51

<211> 531

<212> DNA

<213> Mycobacterium tuberculosis

<400> 51

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cccacctcgg	cggccgggag	caacaccgcc	accacctgt	tcccggtcga	cgaggtcacc	120
cagctggaga	cgcacacctt	cctcgattgc	cacccaacg	gcagctgcga	cttcgctcgt	180
ggagcaaatc	tgcgcacacc	cgacggcccg	acgggctttc	cggccgggct	gtgggcgcgc	240
caaaccaccg	agatccgttc	gacgaaccgg	ttggcctatc	tggaacgcga	cgccaccagc	300
cagttcgaac	gggtaatgaa	ggcgggcgga	tccgacgtga	tcaccaccgt	ctacttcggc	360
gaggttcgcg	cggacaaata	ccagaccacc	ggggtcacgc	actcgaccaa	ttgggtcgacc	420
ggtcaaccga	tgaccgacgt	caacgtcatc	gtgtgtacac	acatgcaggt	ggtctaccgc	480
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<210> 52

<211> 1704

<212> DNA

<213> Mycobacterium tuberculosis

<400> 52

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ggaagtccgg	ccataccgtc	gacggcgagc	gagataacca	acccgttgcg	cggtcagtag	180
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ctcgccgcgc	ttggtcgccc	ctacgacggt	gacgagcgcc	tcagcgtggt	cgagttctcc	660
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gacggccgcg	acgattccgg	gttttatccc	gtcgccacgc	tcgacatccc	acgcgacgcg	1680
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<210> 53

<211> 657

<212> DNA

<213> Mycobacterium tuberculosis

<400> 53

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actcaggtgg	tttcgggtgg	gggaaccggc	ggttcgacgg	ccaagatgga	tgtctaccaa	180
cgcaccgcgc	ccggctggca	gccgctcaag	accggtatca	ccacccatat	cggttcggcg	240
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gactccgctt	ttggcaccgc	gccgaatccc	ggtggcgggt	tgccgtatac	ccaagtcgga	360
cccaatcact	ggtggagtgg	cgacgacaat	agccccacct	ttaactccat	gcaggctctgt	420
cagaagtccc	agtggccggt	cagcacgggc	gacagcgaga	acctgcaa	cccgcagtac	480
aagcattcgg	tcgtgatggg	cgtcaacaag	gccaaagggtcc	caggcaaaag	ctccgcgttc	540
ttctttcaca	ccaccgacgg	cgggcccacc	gcgggttgtg	tggcgatcga	cgatgccacg	600
ctggtgcaga	tcattccgttg	gctgcggcct	ggtgcgggtga	tcgcgatcgc	caagtaa	657

<210> 54

<211> 408

<212> DNA

<213> Mycobacterium tuberculosis

<400> 54

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tcgctggggc	ccccatgctc	cagctgggag	cgcttcattt	ttggacgagg	cccctccggt	180
caggccgaag	cctgtcattt	tccgctcct	aaccagttcc	cgccggccga	aaccggctac	240
tgggtgatct	cctaccgcgt	atacggcgtc	cagcaggtcg	gtgcgccgtg	tccgaagccg	300
caggcggccg	cgcagtctcc	ggatgggttg	ccgatgctgt	gtctgggagc	ccgtggatgg	360
cagccgggat	ggtttaccgg	ggccgggttc	ttccctccgg	agccataa		408

<210> 55

<211> 474

<212> DNA

<213> Mycobacterium tuberculosis

<400> 55

atgggtgaat	tacggttggt	gggcgggtgtg	ctccgggtcc	ttgtcgtggt	cgggtcgggtg	60
ttcgatgtgg	cggtgctaaa	cgccgggtgcg	gctagtgccg	acggcccggg	ccagctgaag	120
agccgattgg	gcgatgtttg	cctggacgcc	ccgagtggga	gctggttcag	cccgtcggtg	180
atcaaccctt	gcaatgggac	cgactttcag	cgctggaatc	tcaccgatga	ccggcaggtc	240

gagagcgtgg	ccttccccgg	ggaatgcgtg	aatatcggaa	atgctttgtg	ggcgcgcctg	300
cagccctgtg	tgaactggat	cagccagcac	tggactgtcc	agcccagacg	cctgggtcaag	360
agtgatcttg	atgcctgcct	cacggttctc	ggcgggtccg	atcctgggac	ctgggtgtcc	420
acccgctggg	gcgaccccaa	tgcacccgac	caacagtggg	atagcgtgcc	gtaa	474

<210> 56

<211> 723

<212> DNA

<213> Mycobacterium tuberculosis

<400> 56

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tggggccacc	caagcgaatt	gatccagctg	acagcggatt	tcgggtatcaa	ggagacgacg	120
ttgcgggtcg	cgctgacccg	catgggtcgg	gccggggatc	tggtccggtc	cgcggaacggc	180
taccggctct	cggatcgggt	gctggccccg	cagcgccgac	aagatgaggc	catgcgcccc	240
cggacccgcg	cttggcacgg	aaactggcac	atgctgattg	tcaccagcat	cggcaccgat	300
gctcgtaccc	gggcccgcact	gcgaacctgc	atgcaccaca	agcgtttcgg	tgaattgcgg	360
gaaggggtgt	ggatgcggcc	ggacaatctc	gacctcgact	tggagtccga	cgttgcggcc	420
cgggttagga	tgctgacggc	ccgcgacgag	gcccccgccg	acttggcccg	gcagctgtgg	480
gatctgtcgg	ggtggaccga	ggccggccac	cggttgctcg	gcgacatggc	agcggccacc	540
gacatgccc	ggcgatttgt	ggtggctgcg	gcgatggtgc	gccacctgct	caccgatccg	600
atgttgccc	ctgaactgtt	gcccgcgcgac	tggccggggc	ccgggttacg	ggcggcgtag	660
cacgacttcg	ccactgcaat	ggcgaaacga	cgcgatgcaa	ctcaactcct	ggaggtgaca	720
tga						723

<210> 57

<211> 465

<212> DNA

<213> Mycobacterium tuberculosis

<400> 57

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gtgccaaagc	ccgtcgcgct	ggtgacgttt	gccggagccg	cgctcagcgg	ggatcatccc	120
gcgattgccc	gcgcggatcc	ggtcgggcat	caggtgacct	acaccgtcac	gaccaccagc	180
gacctgatgg	ccaacattcg	gtacatgagc	gccgatccgc	ccagcatggc	ggctttcaat	240
gccgattcat	cgaagtacat	gattaccttg	cacactccga	tcgctggcgg	tcagccgctg	300
gtctataacc	ccacgctggc	aaacccgagc	cagtggggcg	tcgtcaccgc	cagcggcggc	360
ctgcgggtca	atccggagtt	ccactgcgag	attgtttag	acggccaggt	ggtggtgtcg	420
caggacggcg	gcagcggcgt	gcagtgtctg	actcgtccct	ggtaa		465

<210> 58

<211> 699

<212> DNA

<213> Mycobacterium tuberculosis

<400> 58

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ccggcagccg	ccgccaagta	ctggcgccag	cagacatacg	acgactgcgt	cctgatgtcg	180
gccgcggacg	tgatcgggtca	agtgaccggc	agggagcctt	ccgagcgcgc	catcatcaaa	240
gtggcccagt	cgacacccag	cgctcgtcac	cccgggtcca	tctacacaaa	gccggccgac	300
gccgagcacc	cgaactcggg	aatgggtacc	agcgtggccg	acataccgac	gctgctggcg	360
cattacggcg	tcgacgccgt	tatcaccgac	gaggaccacg	ccacagccac	cggagtcgcc	420
accggcatgg	ccgcctcga	gcagtatctg	ggcagcgggc	acgccgtgat	cgtcagcatc	480
aacgccgaga	tgatctgggg	ccagcccgtc	gaggaaaccg	acagtgccgg	caacccgcgg	540
tctgaccacg	ccgtgggtgg	gaccggtgtc	gataccgaaa	acggcattgt	tcacctcaac	600
gacagcggta	ccccacggg	ccgcgacgag	cagatcccga	tggaaacctt	cgtcgaggcg	660

tgggccacca gccacgactt catggccgtc accacctga

699

<210> 59

<211> 642

<212> DNA

<213> Mycobacterium tuberculosis

<400> 59

atgggagtca	ttgcccgcgt	tgtcgggtgc	gccgcgtgcg	gtttgtccct	ggccgtgctg	60
gccgccgcgc	ccaccgcggg	cgcggaaccc	accggcgcgc	tgccccgat	gacatccagc	120
ggcagcggac	cggatcatcg	cgacggtgac	gccgcgtgc	gacagcggat	ctcacagcag	180
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acgccgactt	cgatgtgcaa	caacggttg	acctaccgc	cgttcgccga	caccgcgcgc	540
ggcgaagagg	gctatttcgt	cttgctggcc	ggcacggcct	cggacttctg	cagtgcgccc	600
aacgcgaact	accgaaccac	cgcgagctca	tggccgggct	ag		642

<210> 60

<211> 471

<212> DNA

<213> Mycobacterium tuberculosis

<400> 60

atgcgcttga	agccagcccc	atctcctgct	gcagcctttg	ccgtcgccgg	cctgatcctc	60
gcaggctggg	ccgcatccgt	gggcctcgcc	ggcgccgatc	cggagccggc	accgacaccg	120
aagacggcaa	ttgatagcga	cggcacctat	gcggtgggga	ttgacatcgc	tcccggcacg	180
tacagctccg	cgggacccgt	cggcgacggc	acctgctatt	ggaagcggat	gggtaacccc	240
gatggcgcg	tcatcgataa	cgcactcagc	aagaaaccac	aggtagtgac	gattgagccg	300
accgacaagg	cgttcaagac	gcacggctgc	caaccctggc	agaacacggg	cagcgaaggc	360
gctgcccctg	ccggagttcc	tggacctgaa	gcggggggccc	aactacaaaa	tcagctcggc	420
atcctcaacg	gcttactcgg	accgactgga	gggcgagtgc	ctcagcccta	a	471

<210> 61

<211> 432

<212> DNA

<213> Mycobacterium tuberculosis

<400> 61

atgatcacia	acctccgacg	ccgaaccgcg	atggcagccg	ccggcctagg	ggctgctctc	60
gggctgggca	tcttgctggg	tccgacgggt	gacgcccata	tcgccaacgg	ttcgatgtcg	120
gaagtcata	tgctggaaat	tgccgggttg	cctatccctc	cgattatcca	ttacggggcg	180
attgcctatg	ccccagcgg	cgcgtcgggc	aaagcgtggc	accagcgcac	accggcgcga	240
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accaggtgcg	gcgcggtcgc	ctacaacggc	tcgaaatacc	aaggcgggac	cggactcacg	360
cgcgcgcgcg	cagaagacga	cgcctgaac	cgactcgaag	gcgggcggat	cgtcaactgg	420
gcgtgcaact	aa					432

<210> 62

<211> 402

<212> DNA

<213> Mycobacterium tuberculosis

<400> 62

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catgatgccg	cagcggactg	gctcatggcg	tccgacaccg	gatttgcgac	ctgcccgatg	120
acacaaggaa	gcctgggtcg	attcctgggtg	cgctcggggac	agtccgcggc	ggcgggtcgg	180
gatgtcgtca	gtgcgggtcca	gtgcacgagc	cgccacgaat	tctggcccga	tgcactctct	240
ttcgccgggtg	tcgaggtcgc	tgggtgtggtt	gggcaccggc	agggtgaccga	tgcctacctt	300
gcccagctcg	cgcgaagcca	cgacgggcag	ttggcgacgc	tcgacagcgg	cttagcacac	360
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<210> 63

<211> 378

<212> DNA

<213> Mycobacterium tuberculosis

<400> 63

gtgcagcgcc	aatcattgat	gccccagcag	acccttgccg	ccggcgtttt	cgtgggtgcg	60
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tatctgggtca	acgtgacggg	acgcccgggc	tacaacttcg	ccaacgccga	cgcgcggttg	180
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caggctgtca	acgaactctg	ccccgcgctg	atctggcagt	tgcgaaactc	cgcagtcgac	360
aatcggcgct	cgggctga					378

<210> 64

<211> 657

<212> DNA

<213> Mycobacterium tuberculosis

<400> 64

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ccattgggtg	acacgcacac	cgcggtgggtg	ctgggcaggc	caggcccgga	atttcgcccg	600
tcggaggtgg	cgcggttggtg	ttatctagcc	ggcatcgtgg	cgacgatgct	gcgctga	657

<210> 65

<211> 660

<212> DNA

<213> Mycobacterium tuberculosis

<400> 65

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cccgcgcgcg	cggaggccgc	cgcggccgaa	cccaaatacat	cagccgggtcc	gatgttctcg	120
acctacggta	tcgcctcgac	actactcggc	gtgctatcgg	tcgccgcggg	cgtgctgggt	180
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gcgacgtcgg	tcagtgagaa	cgccggcgcc	aaaccccaga	ccgtgcactg	gaacttgccg	600
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<210> 66
 <211> 507
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 66
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 gtcttcggcg cgccactgcc gttggacccg gcatccgccg ctgacgtccc gaccgccgcc 180
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<210> 67
 <211> 390
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 67
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 gttgtggcgc gcgccaagg catgtcccag gacatggcgc aaaccttcac cagtatcgcg 300
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 ccagacatgc cggggctgcc cgggtcctag 390

<210> 68
 <211> 327
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 68
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 actaaaacca gcgtcagcgc gaaatag 327

<210> 69
 <211> 372
 <212> DNA
 <213> Mycobacterium tuberculosis

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 ccccttattt tgggtgttcg cagggtgtcc gagctctcaa cctgctcatg gtcgacacac 240
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 <211> 342
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 70
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 caagcccagc tggctctgcaa gaagctggcc agcggcgaaa ccggcaccga gatcgccgag 240
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<210> 71
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 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 71
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<210> 72
 <211> 465
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 72
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<210> 73
 <211> 1146
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 73
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caatag						1146

<210> 74

<211> 699

<212> DNA

<213> Mycobacterium tuberculosis

<400> 74

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<210> 75

<211> 885

<212> DNA

<213> Mycobacterium tuberculosis

<400> 75

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<210> 76

<211> 1140

<212> DNA

<213> Mycobacterium tuberculosis

<400> 76

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<210> 77

<211> 858

<212> DNA

<213> Mycobacterium tuberculosis

<400> 77

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<210> 78

<211> 1371

<212> DNA

<213> Mycobacterium tuberculosis

<400> 78

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<210> 79

<211> 1347

<212> DNA

<213> Mycobacterium tuberculosis

<400> 79

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<210> 80

<211> 339

<212> DNA

<213> Mycobacterium tuberculosis

<400> 80

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<210> 81

<211> 447

<212> DNA

<213> Mycobacterium tuberculosis

<400> 81

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<210> 82

<211> 1224

<212> DNA

<213> Mycobacterium tuberculosis

<400> 82

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<210> 83

<211> 504

<212> DNA

<213> Mycobacterium tuberculosis

<400> 83

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<210> 84

<211> 684

<212> DNA

<213> Mycobacterium tuberculosis

<400> 84

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ctcgaccggg	ctcactacca	gaactttgct	atcaccgacg	acagtctgat	tttctacttc	600
gcccaggggtg	agctgctgcc	gtcgtttgtc	ggcgttgcc	aagcccaggt	gccgcgcagc	660
gccattccgc	cgctggcaat	ctaa				684

<210> 85

<211> 519

<212> DNA

<213> Mycobacterium tuberculosis

<400> 85

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ccggatgccg	tgggctttga	cccgaacctg	ccgcccggcc	cggacgctgc	acccgtcgat	180
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tgggacgcga	tcgcgcagtg	cgagtcgggt	ggaaactgg	cgatcaaac	cggtaacgg	360
tactacggcg	gcctgcgggt	caccgcgggc	acctggcggtg	ccaacgggtg	ctcgggggtcc	420
gcggccaacg	cgagccggga	ggagcagatc	cgggtgggtg	agaacgtgct	gcgttcgcag	480
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<210> 86

<211> 1527

<212> DNA

<213> Mycobacterium tuberculosis

<400> 86

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taccggaaac	tgactaccac	taccgtggtc	gcgtatttct	ctgaggcgct	cgcgctgtac	180
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gccggcgaca	agatgcgagt	cacgttgac	tacagcaaca	aataccaggt	gccggccacg	300
gctaccgcgt	cgatcctcaa	ccccagcctg	gtggcctcgc	gcaccatcca	gctgtcaccg	360
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<210> 87

<211> 693

<212> DNA

<213> Mycobacterium tuberculosis

<400> 87

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cagatcaccg	acgtcgtgat	cgcgcgcggg	ctgtcgcagc	gcggcggtgc	gttctcctgg	180
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ttcgacgcct	ccggtttgat	ccagtacgcc	tatgccgggtg	ccgggctaaa	gctgccgcgt	300
tcttccggcc	agatgtacaa	ggttgggcaa	aaggtcctgc	cgcagcaagc	gcgcaagggc	360
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cagatgctgg	aggtggggca	cgtcgtccag	gtttcgccgg	tgcgcaccaa	cggcatgacg	480
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ccagcgccgg	tccagcaagc	gcccgtccag	caagcgcccc	tccaacaggc	gcccgtccaa	600
caggcgccgg	tccaacaggc	gccggtccag	caagcgcccc	tccagcaagc	gcccgtccag	660
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<210> 88

<211> 336

<212> DNA

<213> Mycobacterium tuberculosis

<400> 88

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ctcgcgcagc	tgcaggcgga	cgggatcact	ccgccgagcg	cagcgcgcg	catcaaggac	180
gcgcacgccg	tctgcgacgc	cctcgacgag	ggtcactcgg	ccaaagcggt	catcaaggcg	240
gtggccaagg	cgaccggtct	gagcgccaag	ggcgccaaga	cgttcgccgt	tgacgcgcgc	300
tcggcctact	gcccgcagta	cgtgacctcg	agctaa			336

<210> 89

<211> 1563

<212> DNA

<213> Mycobacterium tuberculosis

<400> 89

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ctcggcgccg	tgcccctagc	agcgcccccg	ttggccggcg	cgactgaaga	acccggcgcc	120
ggccaaaccc	cgggtgcgcc	ggctcgtggcg	ccgcaacaga	gttggaaacg	ctgccgcgag	180

ttcatcgccg	acaccagcga	aattcgcaact	gcacgctgcg	cgacggtgtc	cgccccgctc	240
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tga						1563

<210> 90

<211> 411

<212> DNA

<213> Mycobacterium tuberculosis

<400> 90

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tgcgcgccca	gcgaagtggc	gaggacggtc	ggttcggtcg	ccaagtcgat	ggcgactac	180
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ctgcacgcgc	tttcgcaacc	gctgaccgat	ctttcgactc	ggtgctcgct	gccgatcagc	360
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<210> 91

<211> 447

<212> DNA

<213> Mycobacterium tuberculosis

<400> 91

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cggatgatcg	caaccacctg	cgacgcgaa	caatatctgg	cggcggtgcg	ggataccagt	180
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gaacactttt	acaatggcga	tccgctgacg	tttgctggg	tcaatcacat	gaaaatcttc	360
ttcaacaaca	agggcgctcg	cgctaaagg	accgaggtgt	gcaatggata	cccagccggc	420
gacatgtcgg	tgtggaactg	ggcctaa				447

<210> 92

<211> 435

<212> DNA

<213> Mycobacterium tuberculosis

<400> 92

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ccggcgcttg	ggctc					435

<210> 93

<211> 429

<212> DNA

<213> Mycobacterium tuberculosis

<400> 93

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acagccagcc	acctaaccac	cgatgtgcaa	ctggccgcct	acggcatcga	atacgacgcc	360
gagatccatt	ccagtgcac	cgactttgcc	cgattcgccg	atctgaagtg	gaccgacccg	420
ttgcgcgaa						429

<210> 94

<211> 513

<212> DNA

<213> Mycobacterium tuberculosis

<400> 94

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